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ORIGINAL ARTICLES.

SERO-DIAGNOSIS IN TYPHOID FEVER.

Presented in the Section on Practice of Medicine, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1-4, 1897.

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By his admirable summary, covering so thoroughly the general subject, Professor Welch has made much simpler the work of those who are to speak upon special divisions of the subject. In speaking of practical results I shall confine myself chiefly to my personal experience because it is with regard to that that I can speak most positively and which I feel most certain about. But I think where the results of one observer differ from those of another in this test one should be very careful in comparing the two, because very slight differences in technique, or interpretation of the phenomena observed will give a very different percentage in results.

My own experience consists so far in the examinations of somewhat over 600 bloods, of which more than half were from cases of typhoid fever. In these examinations and in my work I have been assisted very much by Dr. MacTaggart, of Montreal, resident pathologist of the General Hospital. Before covering the ground which Professor Welch has indicated as being a suitable field for discussion I might point out one or two directions in which the study of this reaction may be profitable aside from the question of the diagnosis of typhoid fever. There are other diseases which will give the reaction, cholera for instance, and, it is said, Malta fever and the bubonic plague. But both of these are rare diseases with which we have little to do. It seems to me that some other common diseases may give a diagnosis in this manner. With reference to typhoid, other applications of the test, such as the identification of doubtful cultures isolated from suspected water or suspected stools, might receive more study than they have. It would be foreign to the discussion to go into this subject, but some of the results of the preliminary studies which I have made in this direction have been extremely interesting, and very encouraging as showing a possible future for applying the test for the identification of the typhoid bacilli in suspected water, etc. We tried to utilize the clumping as a means of isolating the typhoid bacilli from mixed liquid cultures, and when one acts with media artificially infected with typhoid and colon bacilli the results are quite striking. One can produce clumping in the mixed bouillon of typhoid bacilli and colon bacilli, and one can filter this very much clumped culture through a filter of sand so that the typhoid will remain in the sand while the colon runs through the sediment. This can be seen very nicely by using this differential test on the sand and filter. The typhoid very largely remains in the sand, and the filtrate consists largely of colon bacilli. I have endeavored to apply this more in routine laboratory work, but have not yet succeeded in getting a definite practical method for routine use. This isolation might be of more value if combined with some other method.

Another experiment was to inoculate with a culture, and test for typhoid in the animals after about one week. In some cases I was able to obtain the reaction where the quantity of the typhoid material originally introduced was very small, represented by one part of bouillon culture to four millions of water, containing eleven thousand bacteria to the cubic centimeter. These experiments, however, I do not think are by any means as severe a test as one would find in natural unintentional infection of water, for where you artificially put in typhoid it is relatively easy to get at it again. I mention this simply as a field of possible utility.

With reference to the application of the method to the diagnosis of disease by using pure cultures, the field of application seems to have been transformed by advanced steps. Prior to Widal's discovery the impression was general, and I shared it, that this was an exceedingly complicated subject and very difficult to take up. The methods of Pfeiffer certainly did not sound easy. Widal, I think, has introduced marvelous clearness into the method. The whole thing became clear and comprehensible to the ordinary mortal, and has been largely carried out since. It was thought to be a bedside or clinical reaction, but subsequent events have shown that while it may answer well as a clinical test, perhaps the best results can be obtained in laboratories, and sending of material taken for diagnostic purposes to the laboratories to be examined there, is the best procedure.

With reference to the general application of the method, my own small share in the matter has been in the direction of trying to apply the principle of what I may call wholesale-public-health diagnosis, as introduced by Professor Biggs and Dr. Park. The object was to reduce to the minimum the trouble of the technique which one would expect of a person who had charge of a case, and transfer that, as much as possible, to the laboratory; so I made use of the fact which Widal had established, that drying of the blood did not interfere with the reaction, and applied it to the use of dried blood for the test. Whether this is the simplest way for transmitting material for examination depends largely upon the conditions of the case. As bacteriologist of the Province of Quebec, which comprises about two-hundred square miles, much of it sparsely settled, I think the method has distinct advantages. We have seen cases from Murray Bay, where the doctors are prompt in sending cultures. They send them on paper. We find that a great assistance in our work. I do not say that it is the method which should be used in hospital practice or

city practice where the facilities for transmission are greater. It is a very simple thing to send the dried blood by post, and in our work we use the postal facilities very largely. So that, as to the method to be employed, I think Professor Welch has stated the matter extremely well, that it should be as simple as possible, but we must have an accurate technique. The attention to the technique has been, I think, very largely in the direction of quantitative estimation. The dried blood method at first did not seem to offer a promising field for quantitative estimation, and I remember feeling rather discouraged because other people were getting quantitative results and I could not. However, by the use of the hemometer, testing the hemoglobin by the ordinary coloring method in the solution of dried blood, one would get results corresponding very closely to what he would get in a control drop of blood which was not allowed to dry. Of course the longer the drying was continued the less accurate the results were. But I found that by this dilution I was not able to diagnosticate cases which I could diagnosticate without the accurate estimation of the dilution. A little practice will enable one to get a distinct reaction with a high degree of dilution. I do not say that it gives as good scientific results, but after using both methods I found that I could get just as good results without the dilution as with high dilution. But instead of the dilution, we used a special kind of culture, and I found there was a difference in this respect between serum and a solution of the entire blood. I think that is a point of some importance, so that what I say of blood solution may not hold true of serum. Blood solution appears to be more liable to give clumping, a false clumping, than serum. This is especially the case with typhoid cultures where the movement is very active, and for this reason in using dried blood it is better to get cultures where the motility is gentle. There is not much motility where we use old cultures. We found that out by accident. At first we used old cultures and got good results. It was only when we changed cultures that we got bad results, and on returning to the old method we found out what was the cause of success.

The question of the alkalinity of the culture is, I think, one of considerable importance, and one to which little reference has been made. The alkalinity has a marked effect on the clumping. A slightly acid medium may give no clumping, but by rendering it slightly alkaline clumping will again take place. The bouillon in which the culture is made seems to exercise some influence. Recently we found an excessive amount of spontaneous clumping taking place in our cultures and we were able to trace it apparently to the fact that the laboratory bouillon was made more alkaline than formerly; it was strongly alkaline instead of slightly alkaline. A culture which gives a very heavy growth, which does not work well with a bouillon of twenty-four hours, does not work well with the dried blood method, although it may with the serum. And if there is any deposit with the dried blood method in twenty-four hours, it does not work well so that one can tell, if he is using the culture every day, whether it is in good condition or not. It is important to get the bouillon in a proper state of alkalinity, and my object has been to get cultures into such condition that with this method they will not react to other bloods and will act decidedly to typhoid bloods. Although no positively accurate method may be obtained, yet one may get a method which is qualitative and reliable for the greater percentage of cases.

With reference to quantitative estimation, I think the variations produced by the condition of the culture and the alkalinity of the medium may have an influence in determining the quantitative result. There must be a fixed basis for the quantitative result and if this is going to react differently with different cultures there will be a shifting base.

With reference to the B. coli reaction, referred to by Dr. Welch, I find that also of considerable use in diagnosis in doubtful cases, where there are symptoms like typhoid but no reaction, or where there was a doubtful reaction blood. Such bloods I found generally to give a very decided reaction with the colon bacillus. This I interpreted to be due to B. coli inflammation, and it seems likely the colon bacillus in these cases is capable of producing a distinct infection which will give rise to symptoms very much like typhoid.

Definition of the reaction perhaps deserves more attention than it has received. What one man would call a reaction perhaps another man would say was not quite complete, so that uniformity of terms would be desirable. I believe that the coincident occurrence of the gradual cessation of motion and clumping is the characteristic feature; but if motion goes on and the clumping is not ultimately typical, that looks very much like pseudo-reaction. If there is clumping with incomplete loss of motion, it is perhaps to be regarded with suspicion; and I think in doubtful cases should not be considered so seriously as to upset the whole theory, borne out by such an enormous number of cases, as to the specific value of the reaction. Perhaps the selection of cases is something which deserves consideration, for one's results depend very largely upon whether he takes typical cases or doubtful cases; and I think a corroborative examination by means of bacteriologic tests in doubtful cases would give valuable additional evidence. Personally, I have never yet got a typical reaction in a case in which there was not strong ground for believing it was typhoid fever. I have had one case of typhoid fever in which the reaction was absent as far as I could make out, both by the dried blood method and the serum method, but that case was seen only in the later stage. It ended in recovery. Therefore we are not certain as to the nature of the disease. But possibly the reaction may be absent. It is not infrequently delayed into the late stage so that repeated examinations are necessary, and one can utilize for statistics only cases in which there have been abundant chances for observation and re-examination. I think these questions will be decided by the clinicians, not by the laboratory men, because so much depends upon the diagnosis of the case being accurately made.

DISCUSSION.

Dr. N. S. DAVIS, JR., Chicago—This question of serum test has been one of great interest to me the last year, and fortunately soon after Widal's paper first became generally known I succeeded in interesting our resident physician, Dr. Miller, in making the examination in all typhoid fever cases which entered the hospital the last winter. He has carefully carried out the various methods, and the conclusions he has reached correspond very closely with those given by Dr. Cabot in his general summary. For example, he found in about 90 per cent. of the cases of genuine typhoid fever a positive reaction; in 6 per cent., of the cases he has found a partial reaction, not a perfectly positive one; in 3 per cent. there was no reaction whatever.

I remember one case under my observation a few weeks in which the febrile symptoms were so mild that we would scarcely

have regarded it as a case of typhoid fever. There occurred, however, after the patient had been in the hospital four or five days characteristic typhoid stools. The reaction had been obtained in a very pronounced manner immediately upon the patient entering the hospital, which was on the third or fourth day of his illness. The course of the disease in that case was short, lasting only about two weeks. In other instances the reaction was not obtained until late in the disease. Of the cases examined not of typhoid fever, Dr. Miller found the reaction in 2.5 per cent. In part of these cases there was a history of prior typhoid fever, but not in all of them. It is evident, therefore, that while this reaction is very frequently present in typhoid fever, it is not an absolutely constant occurrence.

I feel inclined to criticise the tendency to call the reaction the typhoid fever test. Would it not be better to call it a symptom of typhoid fever? We have other symptoms of typhoid fever upon which we have relied in times past very largely in making the differential diagnosis where diagnosis was difficult, for example the occurrence of rose spots. Yet we know that rose spots occur occasionally in other diseases than typhoid fever. We know they do not occur in all cases of typhoid fever. Yet when we find rose spots in connection with other symptoms we make our diagnosis. We rely upon the *tout ensemble* rather than upon the individual symptoms. Therefore, would it not be better to regard the serum reaction as a symptom of typhoid fever rather than as a test, and take it only in connection with other symptoms, and not look upon it so exclusively, as some seem inclined to do, as a test pure and simple for typhoid fever?

Dr. H. A. WEST, Galveston, Texas—I wish to make one remark with regard to the importance of this test in sections of the country from which I come. It appears to me that it may be the possible means of settling some vexed questions in my section of the country with regard to the diagnosis of fevers. While in my own mind I have been satisfied as to the extensive prevalence of typhoid fever throughout Texas, and believe that the continued fevers which fail to yield to the salts of cinchona are typhoid fever, yet there is a division of opinion and the question is far from being settled. There is a class of practitioners who do not regard this continued fever as typhoid. They do not see the eruption; they do not find the ordinary classical symptoms of typhoid fever; they call it slow fever, catarrhal fever, simple continued fever, thermic fever, etc. There is another class of practitioners who call them cases of continued malarial fever. While they acknowledge the fact that they last three or four weeks, sometimes six or eight weeks, in spite of daily doses of 20 to 40 grains of quinin given during that period, still it is claimed that they are cases of malarial fever. The question came up at the State Association, and I regard it as one of the most important questions before the South or the country at large. From what I have heard this evening, I do think this method may be the means of settling that vexed question. I propose to carry it out to the extent of my ability, but I may say that the cases which I see in Galveston are classical typhoid fever with eruption, and running the course which typhoid fever runs the world over.

Dr. J. B. HERRICK, Chicago—I will mention some of the results obtained in about one hundred cases by Dr. George H. Weaver in the laboratory of Rush Medical College. In general his results have been confirmatory of those we have listened to today, but in two cases, shown postmortem to be typhoid, the blood examination during life and after death was negative. Now it may be a peculiar coincidence that in these cases there was also tuberculosis. One patient, an adult negro, under my own observation, died of typhoid fever as nearly as we can judge, in the fourth week, and postmortem we found typical healing typhoid but also a tubercular gland opening into a vein serving to explain distinct tubercular foci. In the second case, not under my own observation, a somewhat similar finding was made. This, I say, may be a coincidence, but it opens up the question whether this serum reaction will be modified by mixed or secondary infection. I believe other observers have reported on a few cases of mixed infection where the reaction has been positive.

RELAPSES IN TYPHOID FEVER.

Presented in the Section on Practice of Medicine, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY WILLIAM OSLER, M.D.

BALTIMORE, MD.

One of the most distressing incidents which we may meet in typhoid fever is the occurrence of a relapse after we have guided the case safely to convalescence. The temperature has become normal, the patient is happy and hungry, the relatives contented, the doctor congratulates himself that he has cured a case of typhoid fever, and then comes the relapse and the tempest of the soul, so to speak. In the first place it is always a source of congratulation to the doctor that he is not personally responsible for the relapse. The condition under which relapse occurs is not, I think, in the large majority of cases within the control of the physician. Errors in diet are in some instances held responsible for it, but only in a very limited number of cases can the diet be held to be definitely responsible.

It is important in the first place to define accurately what a relapse is. I think the term should be limited exclusively to reinfection after a distinct and definite period of apyrexia. It is quite true that that definition does not include a certain number of cases which have been termed the intercurrent relapse, and we have a certain number of cases in which the temperature falls not quite to normal, say to 100 degrees F. or the morning temperature to 99.5 degrees, while for three or four days there is a distinct lull and then a recurrence of the symptoms. One is often in doubt whether such a case should be positively called a relapse or not; but such cases should be grouped as intercurrent relapses and not as true relapses. The occurrence of a relapse is an indication that immunity in typhoid fever is slowly acquired, and not fully acquired when apyrexia is reached.

The sources of the reinfection are as yet unknown, just as are the conditions under which relapse develops; but of the possible sources of reinfection we may mention the lingering of the typhoid bacilli in the mucous membrane and in the adenoid tissues of the intestines. We have been told today by Dr. Richardson, that even after a considerable period of apyrexia typhoid bacilli have been found in the stools. Then it is possible that the source is in the mesenteric glands and the spleen—in the latter region we know that typhoid bacilli remain for a very considerable length of time after convalescence. Chiari recently made an interesting suggestion that the typhoid bacilli remain in the gall bladder, persisting after a long period of time, not only for weeks but even for months, and that the organisms in the gall bladder may be the source of reinfection. He has found typhoid bacilli in the gall bladder in nineteen out of twenty-three cases, a much larger percentage than has been met with by other observers. But the persistence of the typhoid bacilli in the bile passages is well recognized, and he suggests that the taking of an extra amount of food and gastric disturbance may be associated with the passage of a large number of these bacilli from the gall bladder into the intestines.

The evidence of relapse is very different in different series of cases. Up to Aug. 5, 1896, 500 cases of typhoid fever were treated in the wards of Johns Hopkins Hospital and forty cases had relapsed, or 8 per cent. That is the same percentage as is given by Liebermeister in about the same number of cases. It is a very much larger percentage than that given by Murchison in a larger series of cases—in two or three thousand cases there were only 3 per cent. of relapses. Other percentages run up as high as 20, but older observations, and even more recent ones, show that the percentage of relapses varies very much indeed. The relapses may not be single but double, now and then triple, and a few cases have been reported in which four or five relapses occurred. We have only

had a few cases in which two relapses occurred, none in which there were three.

As illustrating the extraordinary length to which a case of typhoid may drag itself with only two relapses, I may mention a case which was admitted in October, 1893. The patient was a doctor, admitted to a private ward with well characterized typhoid fever. The temperature became normal on the forty-first day. There was then complete apyrexia for twenty-three days and the patient had arranged with relatives to be taken home. But fever developed and persisted forty-one days, the temperature reaching from 104 to 105 degrees F. Then there was a period of complete apyrexia for forty-two days, six full weeks without fever. Then there was fever for fourteen days, without rose spots, it is true, but with furred tongue and moderately high fever and with some abdominal distension. So that altogether the original attack with the two relapses covered a period of very nearly six months.

The mode of onset of the relapse is interesting. It is not always, as stated in most works, exactly like the original attack—a stepping up of the temperature each day. It may, in fact, begin abruptly, as in the case which I have just mentioned. The onset of the first relapse was with a series of chills, and a maximum temperature of 105.5 degrees was reached within twenty-four hours of the beginning of the fever. Those cases are not very uncommon. In other instances the relapse is the exact counterpart of the primary attack, the temperature rising gradually, a degree or a degree and a half daily.

Another question has been raised to which I would like to refer, namely, whether the Brand treatment has anything to do with the increased number of relapses. Our percentage is, as you have noticed, not very high, and I do not think one can state that hydrotherapy has any influence in promoting relapses. There are many series of cases with a larger proportion of relapses in which hydrotherapy had not been carried out. Indeed, in certain series in which the relapses have been up to 15 or 20 per cent., the ordidary expectant method of treatment, or perhaps more correctly, the various medicinal plans of treatment have been carried out.

FURTHER REPORT OF CASES TREATED WITH ANTI-TUBERCLE SERUM.

Read in the Section on Practice of Medicine at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY PAUL PAQUIN, M.D.

ST. LOUIS, MO.

In presenting this report to the AMERICAN MEDICAL ASSOCIATION I am not mindless of the many objections which have been presented against sero-therapy in this disease, and of the numerous criticisms which have been passed upon it, and of the feeling of apprehension and doubt which still pervades the minds of many of the profession. I am fully aware that experimental tuberculosis in small animals has failed to accomplish to the degree expected, the kind of so-called cure, hoped for. Nevertheless, I again take the liberty of presenting a report of cases treated with serum, with the results obtained since the last months of 1894 to this date. Naturally, I must leave out a large number of cases of which the reports are incomplete, or otherwise unsatisfactory for the reason, on the one hand, that some physicians did not keep the proper records, and on the other, there was in certain cases some doubt of the nature of the disease and of the results obtained. The cases reported here are such as I know had tuberculosis, and, I feel convinced, have experienced the results I shall mention.

In January, 1895, I presented to the St. Louis Medical Society a report of the results obtained in twenty-two St. Louis City Hospital patients, who had been treated exclusively with serum for three months. The good results in certain classes of patients were so uniform that the presentation of the matter was warranted at the time. The experiments were interrupted there by change of administration and the patients scattering I was able to keep track of only three of those improved, all of whom are still living and back at work apparently well, although I do not yet use the designation cured.

A second report of entirely new cases was made to the St. Louis Medical Society in March, 1896, and included the recovery of two *acute* cases of pulmonary tuberculosis, who had been in the care of three leading physicians of Missouri, who had given as their opinion that there was no hope. It also included the recovery of fourteen cases of chronic pulmonary tuberculosis. In that report I made the following statement: "That of 100 cases treated in a period of eighteen months, the following results obtained: In the first and second stage, as understood in general practice, 14 recovered; in the second stage, improved or checked or still improving at the time, 26; among these 26, 12 seemed to have really recovered, although the time had not been long enough to warrant positive assurance; there had disappeared from observation, in all stages, 35; died during treatment, begun at the third and fourth stages, including 10 moribunds who insisted on trying the treatment, 25. In the same year, Dr. Hayden of Evansville, Ind., reported 4 cases of tuberculosis; all improved and 2 apparently recovered. Besides these, Drs. L. L. Shropshire, San Antonio, Texas; Dr. William Miller, Boerne, Texas; Dr. Hoell Tyler, Mentone, Cal.; Dr. H. S. Lewis, New Orleans, La.; Dr. E. L. Mitchell, Carbondale, Ill.; Dr. J. M. Allen, Liberty, Mo.; Dr. A. G. Deardorff, San Francisco, Cal.; Dr. J. L. Wiggins, E. St. Louis, Ill.; Dr. J. L. Dunwoody, Cripple Creek, Colo.; Dr. W. H. Prioleau, Summerville, S. C., reported the recovery of ever twenty-five cases and marked improvement in over one hundred, while at least seventy-five physicians have reported improvements, of various degrees, in over one hundred cases impossible to record, most of them hopeless from the beginning.

In September, 1896, I presented a report to the Virginia State Medical Society, of a total of 226 cases of tuberculosis. I quote from this paper:

Class.	Pulmonary Tuberculosis.	No. of Cases.
1.	Destructive broncho-pneumonia with cavities	37
2.	Destructive broncho-pneumonia without recognizable cavities	66
3.	With diffuse febrile pneumonia with or without a destructive process	19
4.	With diffuse non-febrile broncho-pneumonia with or without destructive cavities	19
5.	With circumscribed febrile broncho-pneumonia	35
6.	With circumscribed apyretic broncho-pneumonia	13
	Diagnosis not reported clear enough for classification	32
	Hip-joint tuberculosis	2
	Laryngeal tuberculosis	2
	Ovarian tuberculosis	1
		226

In every one of these cases the diagnosis had been verified microscopically. During the treatment of these 226 cases the following conditions obtained:

V 29
189

Effect of serum on fever: 60 subsided, 56 reduced, 26 stationary, 84 not recorded.

Effect of serum on night sweats: 69 subsided, 17 unchanged, 140 not recorded.

Result of serum on weight: 125 increased, 15 unchanged, 27 decreased, 59 not recorded.

Result of serum on strength: 154 increased, 9 unchanged, 24 decreased, 39 not recorded.

Result of serum on appetite: 114 increased, 15 unchanged, 31 decreased, 66 not recorded.

Result of serum on local signs: 40 disappeared, 58 mitigated, 28 unchanged, 100 not recorded.

Result of serum on tub. bacilli: 40 disappeared, 103 reduced, 7 altered, 76 not recorded.

Result of serum on general well being, exclusive of the 40 recoveries: 145 improved; 9 unchanged, 32 not recorded.

Number of recoveries that seemed complete and permanent	40
Number of apparent recoveries with existing lesions (cavities) in statu quo	3
Number of improved capable of performing usual duties	41
Number of improved to a lesser degree	69
Number of deaths reported	32
Number of cases disappeared from observation or under various treatments	41
	226

As to the pulmonary cases, the extent, stage and importance of the conditions at the beginning of were as follows:

In Class 1 there were	20	cases in	advanced stage;	3	in	early stage			
" 2	"	"	35	"	"	"	6	"	"
" 3	"	"	12	"	"	"	0	"	"
" 4	"	"	9	"	"	"	0	"	"
" 5	"	"	12	"	"	"	3	"	"
" 6	"	"	7	"	"	"	1	"	"
			93				13		

Not classified accurately enough for satisfactory description of the stage 120

I beg to say today that those cases reported as having recovered, dating back from one to three years, are still living and apparently well. None of these cases recorded as having improved greatly have succumbed yet, but some of those reported as having up to that time remained unchanged or mitigated or slightly improved, have since died. I have been unable to get an absolute record as to the number of these, although we are using a method of tabulation and clinical report chart which we send out to physicians using the serum. It seems that not one of the cases reported by doctors as having recovered, or in which the disease seemed to have been arrested permanently, have had a relapse, so far, although most of them remain in an unfavorable climate where the disease originated, as in St. Louis, for instance.

I beg now to present a report of 67 cases, which were not included in the foregoing, and which have been treated in the last year, and purposely recorded since the last meeting of the AMERICAN MEDICAL ASSOCIATION, concerning which I have direct information.

Total number of cases 67.

Effect on fever: 17 subsided, 22 reduced, 5 increased, 23 not recorded.

Effect on night sweats: 26 subsided, 4 unchanged, 27 diminished, 10 not recorded.

Effect on weight: 40 increased, 11 unchanged, 4 decreased, 12 not recorded.

Effect on strength: 34 increased, 10 unchanged, 4 decreased, 19 not recorded.

Effect on appetite: 34 increased, 10 unchanged, 4 decreased, 19 not recorded.

Effect on local signs: 17 disappeared, 22 mitigated, 27 not recorded.

Effect on tubercle bacilli, 17 disappeared, 35 reduced, 15 not recorded.

Number of recoveries that seem complete at present	17
Number of improvements to a considerable degree	35
Improvements to a lesser degree	11
Deaths	4

Thus the grand total of cases recorded above properly enough for reliable report is, not including the various doctors' reports herein mentioned 293

Of these, have recovered	57
Apparent recoveries with lesions in statu quo	3
Improved capable to perform again usual duties	76
Improved to a lesser degree	80
Deaths reported (probably some not known)	36
Cases disappeared from observation	41
	293

This report does not include the numerous cases in which serum was tried in moribunds or in more favorable cases for too short a time. Nor does it include a number of cases improved in the last few months by using serum by rectal injection.

In concluding this report, I wish to say that too much is expected of sero-therapy in tuberculosis, or of any treatment for that matter. It can never be possible to arrest consumption when the tissues are so destroyed and their generative energies so enfeebled that they are beyond the power of stimulation. It is only in the early stages that one may expect the best results (and in the early stages it is a most efficacious remedy). One great trouble we have to deal with is mixed infection and this can be reached only by the use of antitoxins prepared specially for the germs producing the complications, assisted occasionally by other measures. Tubercle antitoxin can not act directly against microbic complications. Furthermore it should not be forgotten that the destructive process of tuberculosis is so great, so comprehensive, that no means of wise special or general treatment should be spared to assist sero-therapy or any other special treatment in the work of repair. Most of them were cases of an experimental character. The cases which I have submitted here have been treated almost exclusively by the use of serum.

I am fully convinced that no one is warranted today in proclaiming the absolute and exclusive curative properties of an exclusive specific alone in tuberculosis of all kinds. Every case must be treated on its merits, considering in each the symptoms, lesions, predispositions, inherited conditions and the various susceptibilities present. Sero-therapy is nature's remedy and offers the greatest assurance of benefit in the subjugation of the specific cause or causes, but in most cases, as just stated, it should be supported in its splendid work by such hygienic, dietetic and medicinal measures as are considered wise for each individual case.

THE CAUSE AND MECHANICAL TREATMENT OF SUBLUXATION OF THE KNEE-JOINT.

Read at the Third Annual Meeting of the American Academy of Railway Surgeons held at Chicago, Sept. 23, 24 and 25, 1896.

BY S. L. McCURDY, M.D.

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PITTSBURG, PA.

In order that the treatment of subluxation of the knee-joint may be properly carried out its cause must be thoroughly understood.

Subluxation of this joint is an under-dislocation of the head of the tibia back of, or posterior to, the condyles of the femur. Such a deformity does not exist as a result of chronic disease when the femur is kept parallel with the tibia, during tubercular, synovial, traumatic, gonorrheal and other inflammatory diseases in and about the knee-joint. It can only result from direct violence and from faulty position during the course of treatment.

The series of experiments has been carried out to determine the relative power of the flexor and extensor muscles of the leg, as well as to determine at what

angle, in flexion, the flexor muscles equal the extensors in power. We must remember that extension of the leg is limited to a parallelism with the thigh, and that flexion is only limited by the resistance of the calf with the thigh muscles, or through an arc of 90 degrees. In extension the flexors and extensors are antagonists, and oppose each other with equal advantage, so far as the position of the bones themselves are concerned, because they both have direct action. The advantage, however, is in favor of the extensors, because they are always more powerful. When the leg is flexed the extensors lose their power of direct action and act over a pulley. This pulley is formed by the action of the quadriceps extensor femoris, patella and ligamentum patellæ over the condyles of the femur. As the leg is flexed the extensors lose power and the flexors gain. In order to determine the power of these sets of muscles and to more particularly determine at what angle of flexion the flexors equal the extensors, experiments have been carried out.

Without giving in detail the various experiments which were made upon different individuals, it was found that the extensor muscles upon an average had a resistance of thirty-two pounds, and the flexors twenty-four pounds and that at an angle of about 35 degrees the resistance of the extensors was reduced to twenty-four pounds. This shows that the extensors and flexors have equal power when the leg is flexed to an angle of 35 degrees. A slight variation from the above is found in different individuals.

The experiments were carried out by the use of a goniometer, a pair of spring scales, and four hooks on the jam of a door, one on either side opposite the knee and the other two below these near the floor. To test the extensors, a tape is secured to the hook in front of the knee and thrown around the knee above the joint. The scale is hooked to the hook back of the foot, and another tape is thrown over the ankle and the free ends passed through the ring of the scale. With the leg in extreme extension the tapes are drawn through the ring of the scales. The scales will first register the extreme power of the extensors, but as it is drawn back to about 10 degrees it requires less force to make flexion, hence, a reduction on the scale dial.

To test the flexors, the scales are placed in front of the foot and the knee secured from the hook immediately back of it.

It is quite customary to treat the diseased conditions of the knee-joint in flexion, the degree of flexion being determined by the attending surgeon. Some reasons given for this are that it places the leg in a better position for use during after years, or it is more comfortable to the patient, etc. All of the reasons given are fallacious and founded upon anything but sound reasoning.

In the case of traumatic and other forms of synovitis it is probably true that a greater area of synovial surface is included between the heads of the bone and semilunar cartilage. Such a reduction in actual surface pressed upon could not diminish the pressure, but would place the leg in a less secure position and thus increase muscular spasm and as a result increase intra-articular pressure.

It must be remembered that all muscles which pass over, or the tendons of which pass over or control the action of a joint in inflammation, are in a state of spasmodic contraction. This increased action on the part of the muscles is an effort on the part of nature to protect the sensitive joint. The deformity which follows is in the direction of the most powerful muscles, or sets of muscles.

In hip-joint disease it is flexion, adduction, or abduction. In tarsal disease it is valgus, varus, flexion, extension, etc. In knee-joint disease it may remain normal, as it generally does in diseases of the shoulder or wrist, so long as the leg is kept in a position favoring this. Just as soon, however, as the flexors have a greater power than the extensors we have an increase of flexion.

As a result of my experiments an approximate estimate of the muscular power showed that the flexion at an angle of 45 to 50 degrees, the flexors had absolute control of the leg. This will admit of two things, an increase of flexion and a tendency of the head of the tibia to glide further back under the condyles. This is not only correct theoretically, but it is borne out clinically and has no doubt been observed by many of my hearers.

I have thus dwelt at length on the cause of the condition under consideration in order that the treatment might be preventive rather than that we be called upon to correct the deformity after its existence.

The treatment of subluxations may be summed up briefly as follows:

It must first be determined whether true or false ankylosis exists, whether the dislocation is partial or complete. In true ankylosis a complete section of the bone must be made either by the use of chisels or saw, and if the relationship of the bones can not be restored without it, a wedge-shaped section should be made, the bones brought together and or otherwise secured.

In cases of ligamentous or false ankylosis with a partial subluxation, *brisement forcé* with tenotomies of the hamstring tendons is generally sufficient. The most difficult cases to manage are those where the adhesions are more or less firm and a complete luxation of the bones exists.

Tenotomies of the tendons will free the lower portion of the head of the tibia, but great force does not as a rule restore the joint surfaces to a normal relationship. It is quite possible, after tenotomy, to bring the leg parallel with the thigh, but it will be found that the leg is upon a lower plane than the thigh. This is due to the fact that the head of the tibia does not slip down and forward upon the condyles, but instead the relationship of these bones are not disturbed.

Immediate reduction of subluxation of the knee-joint is prevented: 1. By the adherent patella and synovial membrane to the condyles. 2. By the impinging of the anterior portion of the head of the tibia against the condyles. In cases where the hamstrings are not cut this burrowing in of the bones upon each other is much greater, and an immediate reduction is less likely to be effected. Gradual and continuous leverage offer the best means for correcting the deformity mechanically. In this degree of deformity a rapid cure can not be promised, except by a radical operation.

A complete correction mechanically must not be attempted at the time of the practice of *brisement forcé*, but instead the leg should be carried forward to an angle that would permit a gradual correction of the subluxation. If plaster of Paris is used as a support, it should be reapplied every ten to fourteen days.

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DISCUSSION.

Dr. MAYO—Dr. Gillette of St. Paul, in a number of cases, has broken up the adhesions by means of great force, using some form of mechanicul apparatus in one sitting and without tenotomy. I have myself been afraid to apply this extreme degree of force, and, if the deformity is sufficiently great, much prefer to make an osteotomy of the femur after the method of Macewen; this, it appears to me, gives the best results with the least loss of time and danger. The mechanical apparatus of the doctor I believe would succeed better in the hands of the inventor than with the rest of us. In my experience I have seldom been able to succeed with another man's splint as well as does the inventor himself, and as a rule do better with the plaster of Paris cast.

Dr. HAWES—I wish to take exception to one statement in the paper; no mention is made of complete reduction of the subluxation at one sitting. I think the best result I ever had was where it was necessary for me to use force; I actually tore the skin in the popliteal parts. The splint I have been accustomed to use has two bars on the outside and one inside, extending from the inside of the thigh to the heel and outside to the heel and carrying the bandage around it all, behind the tibia. It seems to me I ought to get better results than I would with this splint.

THE DIAGNOSIS OF MALARIA.

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The diagnosis of malaria, like its pathogenesis, has a scientific life of scarcely two decades. The subject has been roughly handled since an acquaintance with its microscopic diagnostic methods has reached the general profession from the laboratories of scientific biologists and clinicians. As in all newly developed methods, medical and otherwise, there is a tendency to swing from one extreme to the other. Great skepticism greeted Laveran's initial reports that certain parasitic elements existing in the blood of malarial patients and hitherto confused with pigment-bearing leucocytes, were the cause of malaria. The general skepticism of Laveran's colleagues is now superseded by equally universal credulity. While previously no parasites were admitted, now they are even confused with the constituents of the normal blood. Five years ago the existence of malaria in Chicago was denied, while today many vague diseases, especially obscure or obstinate fevers, are diagnosticated malaria.

I. DIAGNOSIS OF THE EXISTENCE OF MALARIA.

(*a.*) *Positive blood findings*, i. e., the detection of the plasmodium of malaria, establishes the fact o malaria, since malaria is always caused by the parasite, and again the organism is almost always found in malaria and in malaria only. A few microscopic examinations will convince the greatest skeptic. It must not be forgotten that, in certain instances, two diseases may occur simultaneously. We have seen malaria in conjunction with various ancient heart lesions, ulcerative endocarditis, pulmonary tuberculosis, chronic nephritis, although never with typhoid fever. These coincidences are, however, infrequent, and the presence of malaria plasmodium makes possible positive differentiation from other diseases, e. g., the frequent error of overlooking or misinterpreting an incipient pulmonary tuberculosis attended with chills. Atypical fevers, associated with chills and sweating, which have few or dubious local findings and are therefore difficult of diagnosis, can at least be differentiated from malaria; for example, analagous typhoid, septico-pyemia occulta, generalized miliary tuberculosis, febrile gastritis, cholecystitis suppurativa, central pneumonia, deep-seated sarcomatosis, ulcerative endocarditis, etc.

(*b.*) *Negative blood findings*, in suspected malaria, are not definitive from one examination. Not infrequently is more than one microscopic search necessary for the positive exclusion of malaria. While suggestive, then, a single negative finding is far from conclusive. The parasites may be indistinguishable in the first few days of the disease. In certain forms they swarm in internal organs, avoiding the peripheral circulation; and lastly, in chronic and recurrent types they are found with great difficulty. Sometimes visceral (splenic) puncture is needed for their detection.

(*c.*) *Fallacies.*—Certain deformities in the red blood corpuscles are often mistaken for plasmodia, *e.g.*, crenations, poikilocytosis and vacuole formation. Not only can the more intimate structure of the red blood discs retract, simulating plasmodia, but the exterior of the hemacyte is far more plastic than is commonly acknowledged, even to the extent of protruding pronounced pseudopodia-like processes. These are but too frequently mistaken for parasites, being found in very many instances of apparently otherwise normal blood. Vacuole formations are characterized by their sharp contour and high luster.

Melaniferous leucocytes are readily distinguishable from the plasmodia by their large nuclei and by their ameboid movement, always absent in adult parasites of equal size. Unstained spores may be confused with the blood plaques, which are, however, structureless and contain no pigment. An Austrian pediatrist lost a docentship for reporting as malaria cases whose blood preparations afterward proved to contain only blood plates and no plasmodia. Coagulation products have been confused with flagella. Many of the small dots seen in malaria which resemble micrococci and were mistaken for such by the earlier Italian observers are similar to those found in most anemias and described by Ehrlich as degenerative changes.

II. DIAGNOSTIC TECHNIQUE.

Complex methods of staining and counterstaining the parasite have been in vogue, but the simplest and most accurate is the direct examination of the freshly-drawn unstained blood, a method we have used with entire satisfaction for several years. In this procedure injury to the corpuscles and staining of the blood plaques are obviated.

The lobe of the ear is cleansed, pricked and a quite small drop is gently expressed. A clean cover glass is held in a pair of forceps to avoid the heat and moisture of the hand, and is carefully brought in contact with the top of the drop. The heat and moisture of the hand or rudely placing the cover against the drop favor imperfect spreading from precipitate drying of parts of the blood. Rubbing the slide well facilitates equable spreading of the blood. Examination is best made with an oil one-twelfth inch immersion lens, although Laveran used lenses of lower magnification. Permanent preparations are procured by allowing the covers to dry, to remain half hour in equal parts of absolute alcohol and ether and by painting with filtered eosin and methylene blue. The use of stains is not usually

advisable, since they obscure the otherwise more brilliant microscopic findings, they act as protoplasmic poisons, abolishing both the ameboid movement of the parasite and the highly characteristic vibrations of its pigment, and finally, they stain the blood plates and coagulation products, thereby confusing the findings, particularly for the unwary clinician.

III. THE DIAGNOSIS OF THE TYPE OF MALARIA.

It is impossible to enter here into the detailed differential morphology of the malarial parasites. Blood examination, however, demonstrates not merely the fact of malaria but also its types, since the various clinical forms of the disease correspond to zoölogically distinct, immutable species of parasite. Determination of species embraces more than purely biologic interest; it declares also the prognosis as in the pernicious forms and designates the treatment, as arsenic in the tropical types. Councilman stated several years ago that in intermittent fever the parasite was seen within the red blood corpuscle, while in remittent fever or in malarial cachexia it was frequently seen without the same or in elongated forms and crescents. Crescents augur relapse. The presence of segmentation forms predict an imminent or incipient paroxysm. The alleged detection of plasmodium is often doubted by us, since it is not uncommon to hear practitioners state that they have found Laveran's organisms an error at least in species determination.

In general terms, the number of parasites found in the blood corresponds to the severity of the attack, although Antolisci, and others with him, believe the large spore-producing bodies remain largely in internal bodies.

Relative exceptions to this rule exist.

(*a.*) *Diagnosis of type from motility.*—In the ordinary tertian parasite there is lively ameboid movement in the young and middle-aged forms. In the quartan form there is slight movement in the young parasite. In the estivo-autumnal type it is variable, often very active.

(*b.*) *Diagnosis from pigment.*—In tertian malaria the pigment is pale and yellowish brown, is fine, and in the young forms is most active, or "swarming"; it accumulates toward the periphery of the parasite, as the pseudopodia protrude, but in the older forms it becomes central. The pigment is inversely proportional in amount to the ameboid movement, *i. e.*, the more pigment the less the ameboid movement.

In the quartan the pigment is coarse, being somewhat larger than in the tertian, irregular, with but little if any movement.

In the estivo-autumnal form the pigment is active, although some describe it as slight, at first fine, later coarse, even rodlike.

(*c.*) *Diagnosis from size.*—The tertian is as large as the red blood disc, even larger; the quartan not larger than the red corpuscle, while the tropical forms are much smaller, from 1-5 to $\frac{2}{3}$ the size of the hemacyte.

(*d.*) *Protoplasm of the parasite.*—In the tertian it is pale and indistinct; in the quartan sharply outlined, and of a characteristically high index of refraction; in the autumnal type it is ringlike, very small, hyaline and difficult to detect.

(*e.*) *Morphologic alteration in the red blood cells.*—In the tertian the red blood cells hypertrophy and are rapidly and completely decolorized. In the quartan they are but little decolorized, may be darker than normal and are not essentially altered in size, although the corpuscles may become slightly smaller than normal. In the more pernicious types they are shrunken, become either darker, of "brassy" color, or completely decolorized, "shadowlike."

(*f.*) *Diagnosis from sporulation form.*—In the tertian the spores are more or less irregularly grouped, individually small, round, whose nucleolus is seldom seen in unstained specimens, numbering 15 to 20 or somewhat less. The segmenting forms are about the size of a red disc, and are of irregular form. The segmenting bodies are found in the peripheral blood rarely, or in small numbers only, except at the time of a paroxysm.

In quartan malaria the spores exist in the margarite form, spores being individually long, with distinct nucleolus, 6 to 12 in number. The segmenting forms are smaller than a red blood corpuscle, of a rosette form, are found in equal numbers in the peripheral and visceral circulations, and may be detected in the apyretic interval as well as in the paroxysms. In the estivo-autumnal types the spores are irregularly formed or stellate, six to eight in number, possibly more, and segmentation occurs chiefly in internal organs.

(*g.*) *Diagnosis from crescents and flagella.*—The crescents are found only in the estivo-autumnal forms, and represent a very resistant form of the organism. They may exist for months at a time without fever or other symptoms. They may be converted into round bodies, from which flagellation is frequently observed. We have never seen crescents apart from extreme anemia. Persisting as they do we can scarcely consider them solely as degeneration forms; they impress us rather as resting stages.

Flagella may be found in any type, though not frequently in quartan fevers. They may be seen when quinin has been previously given, and have been considered by some as degenerative forms. They are but rarely seen in freshly shed blood, but we have seldom missed them when examining a specimen for a long period, *e.g.*, in clinic demonstrations.

IV. THE DIAGNOSIS OF INDIVIDUAL MALARIAL SYMPTOMS.

The diagnosis of individual or isolated cases is most intimately linked with the diagnosis by blood examination. Certain malarial symptoms are not only immediate sequences of the malarial infection, but are also most beautifully explained by the life cycle, life activity and metabolism of the organism.

The melanemia corresponds with the structural disintegration of the hemoglobin of the red blood cells and its diffusion through the blood plasma. The anemia is secondary to reduction of the hemoglobin and diminution of the number of red blood corpuscles; in other words, to morphologic hemodyscrasia. No leucocytosis is seen, save a transient apparent increase at the beginning of the paroxysm. The hemoglobin and red discs are destroyed in equal degree. The anemia is rapidly produced; in fact, corpuscular deglobulization is more rapid than in any other acute affection, and can be utilized to differentiate from pneumonia or typhoid fever.

Each paroxysm being the ripening of a new generation of parasites, the fever corresponds to their sporulation and a saturation of the blood with toxins liberated from the red blood cells. It is a chemic hemodyscrasia or, as Mannaberg aptly puts it, a "protozoan

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sepsis," analogous to that discharge into the blood stream of infective material observed in septicopyemia.

We fully comprehend any clinical form of fever, when we realize that the fever is a toxic manifestation and that as often as the parasites segment, fever occurs. Hence two generations of tertian parasites cause quotidian fever, also caused by three generations of quartan parasites of unequal age. Quotidian continued fever accompanied by splenic tumor, the diazoreaction, and even roseolæ or slow pulse, may cause difficulty in diagnosis from typhoid fever, especially as typhoid may be attended with chills and sweats. The blood examination speedily differentiates and Widal's serum test for typhoid is of great aid. The splenic tumor and bone pains are explained by the phagocytic process in their substance, the hemoglobinuria, diarrhea, retinal and other hemorrhages by the toxemia, the cerebral symptoms, as coma, convulsions or bulbar symptoms, by aggregations of the parasite in the cerebral vessels with thrombosis.

Some special mention of the diagnosis of the estivo-autumnal form is timely since the disease may be imported from the South, and require prompt recognition. Personally we have seen two fatal and a third comatose case, the same number reported from Osler's clinic. The disease is acyclical, arrhythmic in sporulation; while quotidian in type, the paroxysms are of long duration, lasting nineteen to twenty-four hours and frequently overlapping each other with irregular or continuous fever as a sequence. Often chills and chilly sensations are lacking, the rise of fever is gradual instead of sudden and the febrile solution is also gradual. There is greater tendency to retardation or anticipation of the paroxysm than in quartan or tertian types. Profound anemia and cachexia are common, fever may be lacking, relapses are imminent, as long as crescents are found, indeed after they have disappeared and finally spontaneous recovery is infrequent.

V. THE DIAGNOSIS E JUVANTIBUS.

The therapeutic diagnosis, despite the fact that quinin is a specific remedy, is subject to certain errors. First, many fugitive febrile diseases disappear under the use of quinin, which run their short course with equal celerity under other treatment or with no treatment at all. Hence not all is malaria which quinin seems to cure. A blood diagnosis must precede and succeed the therapeutic test.

Second, malaria manifests a certain tendency toward spontaneous recovery. The disease untreated follows a cycle: 1, a gradual increase in the intensity of the paroxysm; 2, a period of oscillation; 3, spontaneous recovery; 4, a relapse in one or two weeks. Then the same rhythm of symptoms is followed. Not infrequently in hospital practice when we give a placebo that we may study the plasmodium, the disease disappears without therapeutic interference. Hygiene, change of habitation, rest in bed and lack of reinfection favor self-limitation. While the fever is a symptom of malarial infection, it is per se a conservative process, killing the parasites. Indeed if all parasites are of the same age, a catastrophe ensues, and the disease is instantaneously cured by the fever. Many of the germs remain sterile. Spontaneous recovery is most common in tertian types and least frequent in the estivo-autumnal variety. The process of phagocytosis, while not yet completely understood, undoubtedly plays an important rôle in spontaneous recovery. The multinuclear neutrophile leucocytes have the greatest phagocytic action and the process is almost always noticed when the flagellate forms abound. Phagocytosis is most marked during the paroxysm and lasts eight to twelve hours. It is consummated by the macrophages of the spleen, liver and bones and to a lesser extent by the endothelial cells in various organs, *e. g.*, the cerebral vessels and by the leucocytes. The slow current of the hepatic vessels, and their large caliber aid the process.

The use of quinin.—The drug does not greatly impress the endoglobular parasite, shielded as it is within the protoplasm of its host, the red blood cells. Coming in access with the free spores in the plasma, it speedily destroys them, and the disease may be extinguished at one dose, as it were, if the parasites are of but one generation. Highly specific in the tertian and quartan types, it is resisted more effectual by the estivo-autumnal form. Most authors state that the specific action of quinin is manifest even in this form, unless the case is far advanced before treatment is begun. We have seen the estivo-autumnal resist sixty grains of quinin per diem for two weeks, and then to react but slightly to the drug.

Regarding our endogenous malaria, the benignant tertian variety, the therapeutic diagnosis can be quickly made. Twenty to thirty grains should at once destroy at least the fever type and, repeated, should in two days cure the disease. If the disease lingers, but two alternatives exist: 1. The quinin is not absorbed, due to faulty administration, in the form of pills, etc., or 2. The disease is not malaria. When we hear that a Chicago malaria resists quinin, we know that another disease causes symptoms which simulate malaria, providing of course the administration technique is irreproachable. Not to encroach upon the treatment of malaria, we assert that at least our northern malaria reacts at once to quinin therapy and that, conversely, failure in treatment positively disproves a diagnosis of malaria.

103 State Street.

MANAGEMENT AND TREATMENT OF CROUPOUS PNEUMONIA.

Read in the Section on Practice of Medicine, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

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In croupous pneumonia we have, I believe, a special and independent affection. Its frequent occurrence, especially during our winter and spring months, affords abundant opportunity for observing it in all its phases. And though these seasons have an undoubted influence upon its prevalence, yet from the tables of mortality we find it also occurs in the milder seasons and in every degree of latitude, wherever rapid changes of temperature with stormy winds take place, particularly with moisture. But in a climate similar to ours this is usually the exception. For it rarely makes its appearance before the colder seasons approach. But while we are conscious of the undoubted fact that these cold, moist seasons have a great bearing toward developing and spreading this affection, there are other important influences at work, which play a part in the inherent qualities of increasing its development, and these are chiefly intemper-

ance of every kind, and poverty, especially if the individuals live in large and crowded cities, in dwellings having poor ventilation; also occupations involving exposure or over exertion, or indeed any other potent factor which might depress the vital forces of the system, as from fevers, etc. These are agencies which might be made subordinate to our surrounding conditions. Be that as it may, we find pneumonia attacking the rich and the poor alike, under every condition, favorable or otherwise, and both alike suffer indiscriminately from its toxic effect.

Now as to the nature and pathology of croupous pneumonia, it is pretty well understood to be more than a local affection or simple inflammation of the lungs. One's system may be greatly borne down by its ravages, accompanied with high fever, rapid pulse with nervous depression several days before any of the general physical signs of congestion and consolidation are manifest. In fact some may pass through an actual attack before the lesion is recognized; then danger is usually past. Besides, the smallness of the area of the lung involved, very frequently does not correspond to the ratio of the fever and the general depressing constitutional symptoms which attend it. Again, after the complaint has assumed or rather has become a local inflammatory affection, where we may have excessive cell formation, with fatty degeneration and liquefaction of the inflammatory products, with all the general physical signs and indications of purulent infiltration attending it, the constitutional effect of the disease, which usually consists of high fever, rapid or depressed pulse, great physical prostration and delirium, with other nervous symptoms, is very frequently, if not entirely, absent.

Realizing then that we have more than a local affection to contend against, a disease which I consider truly specific, infectious and constitutional in character, and which is usually of comparative short duration, and is generally ushered in with a severe chill, or followed very soon afterward with high fever, and, if complicated with either heart or renal trouble, with delirium and a general train of nervous symptoms, it clearly follows that the treatment should be directed, in the main, toward hastening the natural progress of the affection to a speedy close, so as to limit as far as possible its toxic effect on the great nerve centers, on which the strength and volubility of the heart depends to maintain life, using measures which have no depressing effect whatsoever, either on the nervous system directly or on the heart itself, thus assisting in controlling the excessive temperature, which really registers from the beginning to the close the actual termination of this fatal malady. This, in my mind, and I believe in the minds of many others of experience and observation, forms the basis of the present rational treatment of croupous pnenmonia, whether complicated or not.

From this process of reasoning we are justified in assuming that there are two distinct pathologic conditions to be considered in the treatment of croupous pneumonia: 1, local disturbance, involving more or less lung tissue, with perhaps considerable structural changes, without much fever or general physical depression; 2, when the system is laboring under great nervous and perhaps physical depression, with high fever, without much local disturbance.

Now as regards the first pathologic condition, it may be laid down as a clinical fact, and this based on nearly 80 per cent. of cases, that the moment the morbific cause runs its natural course or subsides entirely, the laws governing the vital forces become active in repairing and restoring the diseased parts to their normal condition without any material assistance. But of course it is always necessary to carefully watch the local morbid lesion, to note whether the exudation thrown out by the inflammatory act is remaining unabsorbed or the inflammation itself is becoming chronic or abscesses are forming or gangrene taking place. These and other complications are very exceptional. Interference then in such cases is not indicated or warranted, unless it be careful nursing, because the tendency is toward their own cure. For if we construe aright the morbid phenomena attending them, we will find they consist chiefly of a certain modified temperature and disturbance of the functions of the lungs by an inflammatory act, in which the former, owing naturally to its short duration and moderate amount of fever, is not sufficient of itself to cause alarm. And when it subsides the latter or local morbid process becomes completely insignificant, if not complicated.

The cases then which really demand the greatest attention, and in which material assistance becomes invaluable, are the remaining 20 per cent., the ones which are attacked very severely in the outset with prolonged rigors, and accompanied very soon with excessive fever and rapid pulse, in fact cases in which even from the beginning of the rigor great constitutional disturbance with a tendency to heart insufficiency, especially of the right side, are really anticipated.

Now then what should be the most rational form of treatment from the outset to the decline of this specific constitutional disease, judging it from its infectious nature? Can any constant or uniform method of treatment be adopted as being perfectly applicable in combating its specific properties, by mitigating its toxic influences on the great nerve centers and heart?

We thoroughly understand the chief danger arising from a severe malignant attack of croupous pneumonia. The excessive fever, labored respiration, coupled with nervous exhaustion; also the local inflammatory process, with its deposit of fibrous exudation interfering with the functional properties of the diseased section, rendering it almost impervious to the circulation, thereby increasing the impelling force of the right side of the heart, which is constantly endeavoring to limit as far as possible pulmonic retardation of the blood, are pathologic conditions always favorable to heart insufficiency, the danger to be avoided if possible. So in answer to the first question the expectant treatment presents itself, as it corresponds to the modern view of the pathology of this specific affection, by removing deranging influences without using active therapeutic agents, unless the case absolutely demands it. And as to the second, no constant or uniform method can be adopted as sufficiently adequate in rendering material aid in cutting short the natural course of the disease, aborting its constitutional effects, unless it is by mechanical reduction of temperature, from which the expectant plan also claims some credit. But I am fully persuaded after careful observation—though this latter expedient has been extolled by eminent authorities—that such can not be accomplished. For the disease intends to and will run its natural course, no matter what one may do to arrest it, similarly to any other specific constitutional affection, as typhoid

for instance. We can, however, control or reduce excessive heat by cold applications, and ease up, as often as it is applied, the one organ above all others that the system is most dependent on at this time, viz., the heart; but that only sustains and holds in reserve as it were vital energy which would otherwise be lost, should the struggle be continued unabated.

The treatment then in the management of croupous pneumonia, is best carried out in the large majority of cases, by the expectant plan already alluded to. And though the term expectant is somewhat misleading, in medical language it suggests the various means at our command, other than that of actual depletion or agents that consume the vital forces, viz., free blood-letting and the use of the general depressing drugs, as that of tartar emetic, veratrum viride, heavy doses of aconite, belladonna, etc. Hence, by adopting this system of treatment, apart greatly from the antiphlogistic plan, in the treatment of croupous pneumonia, it enlarges our views immensely, therapeutically and mechanically, allowing us to take advantage of every available means which our judgment suggests to alleviate and modify the course of the disease.

Since the heart is the chief organ upon which the burden of labor is thrown in pneumonia, it is necessary, owing to its increased functional duties, to sustain it from exhaustion, by every means possible. Now how is this best accomplished? First, let us look into the prime factor or cause of this increased exertion on the heart before the deposit of exudate in the lung exerts pressure on the blood vessels within the diseased area. From the very commencement of this affection the fever is a most constant symptom of the elevation of temperature, and it is not only constant, direct and persistent, but also appears to have a complete mastery over every physical exertion it makes. So to this excessive elevation of temperature it becomes entirely subordinate or dependent. This can be shown from the mere fact, that after the fever subsides partially or wholly, when the heart is already exhausted, feeble, but willing to pump, though the local disturbance in the lungs remain about the same, it gradually assumes its old wonted form, and excites within itself a healthy tone toward a normal action. Again, while the fever is still in the ascendency, after the exudate has been freely thrown out, and exerting pressure upon a considerable portion of the healthy lung tissue beyond the diseased section, which not only produces retardation of the blood and increases the muscular capacity of the right heart, preventing by that means the free escape of carbonic gas and other detritus which form very rapidly during fever, the very poisonous elements the system is most desirous of getting rid of, it throws additional labor on the left heart, and arrests, in a certain modified degree, the functional capacity of the respiratory muscles, and all due to the excessive fever, the chief resultant of this specific pulmonic trouble. The chief point of attack then, from the very beginning to the end of the constitutional effects of pneumonia, is the fever. But the management in the reduction requires the most careful and constant attention. To be over active and meddlesome is most injurious, and should be decidedly deprecated, while with prudence and judicious interference, it is not only possible to avert death, but even hasten recovery by sustaining the functions of the heart.

In respect to the reduction of excessive pulmonic fever, various notions and theories have been advanced regarding the best remedies at our disposal to accomplish it; but the one above all others, in my mind at least, is cold applications. And though it has long been extolled and practiced, especially by a few eminent German authors like that of Juergensen and Liebermeister, it has in great degree been held in bad repute and looked upon, in this specific disease, by the vast majority of physicians, especially in this country and England, as not only an extremely radical measure, but a foolhardy and dangerous one to follow. For my part, the experience which I have had has enabled me to save a number of lives by it, when their hearts were almost paralyzed from sheer exhaustion. Now the part which cold, judiciously applied, plays in the role of an anti-pyretic, is simply the gradual subtraction of excessive heat from the body while under the influence of pyrexia. It undoubtedly acts also, by this means, as a stimulant to the nervous system; for in all febrile conditions, destruction of the tissues takes place rapidly and they are changed into various substances of lower chemical composition. Thus through its stimulus on the great nerve centers, cold tends to eliminate these newly formed substances by the natural excretory organs, and in that way arrests its poisonous effects on the nervous system, the heart governor.

This can be clearly illustrated from the report of the following case, which recently came under my notice:

Mr. M—, banker, aged 50, habits and general health good, was suddenly taken with several severe rigors followed soon afterward with a high fever, and though I saw him a few hours after the last chill, found him restless and delirious, with temperature of 105.5 degrees, pulse 130 and bounding. On examination I found at base of right lung slight modified dulness, with few crepitant râles. Respiration hurried, but the characteristic irritant cough usually accompanied with tenacious rusty sputum, was still absent. He was given a full dose of calomel (15 grs.), after which cold wet compresses were applied. The action of the calomel was prompt and efficient, by disgorging the portal circulation, which necessarily relieved the blood stasis existing in the effected pulmonary tissues. Indeed, calomel, owing to its prompt action on the intestinal tract, is one of the best therapeutic agents at our command, in any of the acute infectious diseases. But I believe it is chiefly owing to its antiseptic properties in destroying the diplococci of Fraenkel, in the mouth and fauces, and the removal of the ptomains from the gastro-intestinal tract, that we owe so much to it. The result of the application of the cold wet compresses was highly satisfactory. They were applied assiduously every hour until fever was reduced 3.5 degrees. This took place after the eighth application, when they were discontinued. But whenever the temperature rose to 103 degrees they were resumed as before, and always with prompt reaction. The heart's action, after the reduction of temperature, was greatly modified, pulse fell to 100, but strong, full and regular. The delirium and restlessness, which he greatly suffered from in the onset of the disease, passed away and remained absent after the first reduction of temperature. No medicines were administered during the active stage of the disease, but when crisis ensued, which occurred on the seventh day after the initial chill, strychnia was used hypodermically (one-fortieth gr. every four hours with diluted whisky by mouth). They were discontinued after a few days for tonics and expectorants, until patient recovered. The effects of the cold wet compresses on the patient were, a clearing up of the mind, fuller and deeper inspirations, calmer countenance denoting diminished irritation of the nerve centers, sleep became more restful, and the skin and kidneys acted freer.

No doubt the constant application of the cold compresses on the surface of the body while the fever was in the ascendency, invigorated the nerve centers through the indirect stimulating influence they had upon the peripheral fibers of the skin—the latter always presenting a ruddy hue and being active in

perspiration. Then the reduction of temperature lessened the amount of tissue destruction, and the vital organs, especially that of the heart and kidneys, received a rehabilitating influence from the toned-up nerve centers, which in turn resisted the toxic elements coursing through the circulation.

In the other malignant cases of croupous pneumonia, which happened to come under my immediate notice during the last three years (thirty-eight in all), and treated similarly to the one already mentioned, the temperature vacillated between 103.5 degrees and 106 degrees. In each case the organ of circulation labored hard and showed signs of exhaustion; but under this local anti-pyretic stimulant, behaved well. The cold wet packing in a sheet, and sponging the surface of the body with cold water, were the modes of application employed. This was practiced, on an average of every three hours, until the constitutional effects of the disease showed signs of waning. It usually reduced the temperature from 1.5 to 3.5 degrees, without producing the slightest discomfort—in fact the patients appeared to enjoy it. The usual temperature of the compresses was 60 degrees F.; and though pneumonia patients are as a rule very susceptible to the influence of cold application, the reduction of temperature being frequently marked after the third or fourth application, in some cases its action is not so prompt, requiring diligent and persistent effort in applying cold compresses, perhaps for hours before reduction of fever is noticed. But whenever the cooling process begins, the fever gradually continues to fall and appears to be under easier control, thereafter, than in the susceptible ones. The reason of this, no doubt, is owing chiefly to the more direct poisonous effect of the toxic elements on the sympathetic system or to its chief cervical ganglion; or perhaps to this heat-producing center being more impressionable or under more direct influence of the nervous system. But in either case, whenever the activity of the toxic agents are under control, their elimination is only a question of time when the danger mark is passed. I may be allowed to reiterate that I did not resort to the use of any direct or indirect anti-pyretic medicine internally, save the use of stimulants when cases demanded them. But while cough was severe and annoying, and pleuritic pains present interfering with respiration, I used morphia, hypodermically, in moderate doses from one-twelfth to one-fourth gr., every four to eight hours, until relief was obtained, when they were suspended. I also employed strychnia in the same manner, from one one-hundredth to one-thirtieth gr., and occasionally nitroglycerin in one one-hundredth gr. doses, when I considered the heart and circulation needed them. I used in a few instances, with good effect, hydrate of chloral in moderate doses, diluted freely with syrup and water, when patients were greatly harassed from want of sleep and rest. This drug, though considered an intense depressant upon the nerve centers at the base of the brain when given in full doses, causing more or less weakness of the heart's action, is quite different when administered in small doses. It acts more as a stimulant to these centers, and as a powerful and certain hypnotic to the cerebrum. I occasionally employed, when patients were suffering severely from either occipital or frontal headache, a combination of bicarb, soda, grains 2; acetanilid, 2; phenacetin, grains 3; codeia, grain one-sixth; one given every three hours until the desired effect was obtained, when they were immediately suspended. I consider the combination a useful adjunct, especially in some instances, in combating symptomatic cephalalgia, due to its sedative or quieting influence, without producing any depressing effects on the nervous system or heart. Also I invariably administered, as early as possible, a free dose of calomel, either alone or in combination with some mild cathartic, to start up the hepatic and intestinal secretions; repeated only when necessary. Indeed it is very important for several reasons that the functions of the stomach and bowels should be maintained, especially during the active stage of the disease. The lymphatic system is usually very active, during this time, in excreting from the blood all poisonous matters, and conveying them to the chief emunctory organs, viz.: the kidneys, cutaneous sweat glands, lungs, liver and the intestinal mucous membrane. But none of these excretory organs can be acted upon as readily as the latter during the pyrexial period, in excreting and eliminating the waste products of disintegrated tissues and other effete matters containing ptomains. If these secretions remained too long in the intestinal tract, they would naturally incapacitate the chief functional property of the stomach and bowels, that of proper digestion and assimilation, whose active duties we rely upon for nourishing support. I do not believe in too active catharsis, for it is too depleting, and tends to weaken the general system; only sufficient to cause two or three bowel movements daily. The sick room in each case was kept as well ventilated as possible, and at about 70 degrees. As far as possible, absolute quiet was maintained, with good attention to the regulation of the stomach and bowels, and the giving of good wholesome, plain nutritious diet in liquid form during the pyrexial period, and resorting usually about the period of crisis, to the use of alcoholic stimulants. I abstained from the use of all depressing drugs and cough mixtures, for from past experience I had found that they produced more or less gastric irritation, with intestinal disturbance. The hypodermic injections of the morphia salts appeared to better alleviate the pain and harsh cough.

Such, in a brief way, is the manner in which these cases were managed, suffering as they were from a malignant type of croupous pneumonia, and all but two made good recoveries without serious complications, a maximum saving of 94+ per cent., while under the old routine expectant régime I was exceedingly fortunate in saving 60 per cent. Indeed, by this plan of treatment I was able to reduce the excessive fever sufficiently to enable the heart to have some repose, which enabled it to withstand the severe muscular strain during the period of crisis. Yet I believe had I practiced the German or Continental method in the obstinate or erratic cases, that of placing them in baths and keeping them there from fifteen to thirty minutes, beginning first with a temperature of 90 degrees, gradually reduced to 68 degrees, there would have been more rapid and complete reduction of temperature and it would have remained absent longer than by the method employed.

I believe it impossible to reduce to any degree of satifaction the excessive fever in this disease by any other process without producing a tendency to heart insufficiency. The several derivatives of cool-tar products are all valuable, and perhaps in some instances reliable internal antipyretics, but they have a tendency to produce heart weakness when given in large doses, and as a consequence limit the eliminating process of

the excretory organs. Salol and quinin are two very valuable remedial agents in abating pyrexia, but they too are not sufficiently potent to cause much reduction of temperature without exaggerating nervous symptoms and arresting the secretions. They are more adapted, along with the muriate, carbonate and iodid of ammonia, after the crisis has taken place and the disease become purely local, as stimulating alterative tonics; and as for any of the depressants I leave it for you to decide concerning their antipyretic virtues in cutting short or abating a true case of croupous pneumonia. For myself I have no faith in them whatever, because they are heart depressants, and when any drug assumes that particular therapeutic phenomenon, not only deficient elimination of the substances generated in excess by such excessive heat in both the tissues and blood occurs, but their retention or suspension in the system have a very deleterious or poisonous effect on the nerve centers and ganglia, and should the accumulation of urea, uric acid, carbonic acid and other detritus remain too long in the system paralysis of the vital organs would inevitably ensue and death result. Yet even several of our most prominent medical writers and observers, and indeed a very large proportion of general practitioners of apparent large experience, still cling to the old antiphlogistic plan of treatment, believing that not only better results can be obtained from its practice, but that by a sudden sharp reaction of the general circulatory organ, either by large doses of any of the selected depressants frequently repeated, or perhaps by blood-letting in plethoric cases, with the constant application of hot poultices, and perhaps sinapisms, they can abort or at least limit the inflammatory lesion of the lung to a very circumscribed area, from which little danger can be expected. This I believe is owing to their positive convictions, based on what I should term old pathologic fallacies, having for their ground work or argument that croupous pneumonia is purely a local manifestation and not the resulting pathologic lesion. If we look over the statistics, dwelling upon results obtained by the use of cold applications, coupled with the employment of some active alcoholic stimulant, as that of whisky or brandy, when actually needed, in comparison with the regular or uniform methods, viz.: By general internal medication in conjunction with hot applications externally, etc., whether in hospital or general practice we will be forced to admit, though we have to refer and rely upon Juergensen's reports compiled more than twenty years ago (for we ourselves have no such compilations of documentary materials to draw from of any account), that it had a greater saving of life by over 10 per cent. in its malignant form. Even as early as 1866 to 1876 the mortality decreased at the Basel clinic, and according to Liebermeister, in a given number of cases nearly 10 per cent. from the usual routine treatment practiced the ten years previous, a showing which is not only correct, but astounding, when considered how imperfect their practical knowledge must have been in carrying out the principles of treatment their minds suggested at so early a day, and in the face of public opinion or censure. Yet in the face of this it is equally amazing why the very laity in all our land should not only indulge in suggesting what the treatment in this subtle specific affection should be, especially when disease assumes a serious aspect, but persist in having us practice the old-time antiphlogistic plan, or the general routine treatment with hot applications, etc., when in their hearts they are forced to acknowledge they can not discriminate between the depressing effects of the one and the exhilerating virtues of the other. How this belief has become so thoroughly instilled in the minds of so many apparently intelligent persons is a mystery to me, unless it is from our own lack of self-independence and fear of public censure. But such is the fact, for I have experienced it to my full satisfaction in several instances.

Now in regard to the proper administration of diet. The food should be nutritious and easy of assimilation. Beef tea, beef, mutton or chicken broths, with eggs and milk are the most valuable articles and should be given at regular intervals and in definite quantities, four to six ounces every two hours, and if required, peptonized. And as to the use or employment of stimulants, their chief indications are the occurrence of delirium, a very rapid, weak or dicrotic pulse, especially when associated with adynamia or collapse with low nervous symptoms. They should also be given to patients who are old and feeble, who expectorate with difficulty on account of the excessive viscidity of the sputa. Blisters, hot fomentations, with or without anodynes and sinapisms are only useful for the relief of pain in the advanced stage of the disease. Dr. Beale claims that when the kidneys are in good repair large doses of either brandy or whisky may be given with good results; that owing to its direct action on the nerves of the stomach, it immediately stimulates the heart's action and thus promotes the capillary circulation. Also after the absorption into the blood it alters the consistence and chemic properties of fluids and solids and cuts short the life of rapidly-growing bioplasm, or causes it to live more slowly, and owing to its contractile influence it renders the walls of the vessels less permeable to fluids and checks the disintegrations of blood corpuscles. His opinions are well founded, but the employment of alcoholic stimulants should be used only when the case actually demands it, and that is usually about the period of crisis.

There are other symptoms pertaining to this affection which need considerable attention, but I am unable to dwell upon them now. They are all referable to the digestive organs and often cause great annoyance. Thirst perhaps stands most prominent. Cooling drinks agreeable to the patient's taste should be given freely throughout the pyrexial period.

Such then, in a brief way, is the treatment I advocate in the management of a malignant case of croupous pneumonia. I rely upon cold applications in the subtraction of excessive heat and the use of only such remedies as are adjuncts in alleviating annoying symptoms above all other measures so far advanced. Also I would advocate its use in the catarrhal forms as well and the regular cold bath in obstinate cases, as already stated, as a mode of application in preference to the other methods. I am sure it is the most valuable and reliable form of treatment at our command in combatting excessive temperatures in this disease, either in the home or at the hospital. All we want is courage and self-reliance, and good competent nurses, and unless the disease assumes a terribly malignant form, will yield to its stimulating influence and run its natural course without producing much damage to the patient.

DISCUSSION.

Dr. H. A. WEST of Galveston, Texas—The author empha-

sizes unnecessarily the purely mechanical effects of pneumonia, and leaves out of view the action of the toxins; he also emphasizes the elevated temperature unnecessarily. We do not know to what extent the high temperature may be a conservative process, and while the action of the cold bath may be beneficial, its action is probably to be explained by other facts than its mere influence upon the temperature, just as in typhoid fever its effect is upon the nervous system, stimulating the circulation, respiration and skin. So we should take into consideration the necessity for counteracting the effects of the toxins of the disease. Many patients with pneumonia are in a condition like that of a man who has been bitten by a rattlesnake, and the same indication exists to counteract the toxins by stimulation. I believe there are a number of cases which can not be saved without stimulation by alcohol and by strychnin. When we come across such cases the indication is to keep the patient alive, to keep the vital powers going until nature has time to produce an antitoxin. We can do that most successfully by use of alcohol and strychnin, both given with a free hand. Many other patients will get well without any treatment at all.

Dr. WAINWRIGHT, Kansas City, Mo.—I believe that pneumonia requires the most scientific treatment of any disease which medical men are called to see; that more lives can be saved by the study of pneumonia and the proper application of drugs than in the treatment of any other fever. The indications for treatment so far as the heart is concerned are not, in my opinion, laid down in text-book literature. The average practitioner, when called to the bedside of a patient suffering from pneumonia, is unable to tell when alcoholic stimulants, strychnin or any cardiac stimulant is indicated. Why? We are taught to watch the pulse and study the first sound of the heart. The part of the heart to study in pneumonia is the right side. We have not exactly the same pathologic conditions present here in the right side as in hypertrophy of the left ventricle without pneumonia. In pneumonia nature makes an effort to compensate, but she has not time. If the time were long enough hypertrophy would take place in the right side of the heart in pneumonia. Then the question arises whether we shall give stimulants. In some cases alcohol and strichnin are positively and decidedly indicated, yet they are in some cases responsible for the death of the patient by causing exhaustion of the heart. When we give alcoholic stimulants it is at the expense of stored-up energies of the heart, and they ought not to be given until they are decidedly indicated. I claim that the indications for the use of alcohol and stimulants in pneumonia depend upon the state of the right side of the heart, which can be determined by careful study of the pulmonic element of the second sound. The right side fails first.

One other point relating to the pathologic condition which embarrasses the right side of the heart. In addition to the hepatized lung, there is vicarious emphysema in the healthy lung. In emphysema of the lung the right side of the heart is always greatly embarrassed.

Dr. E. B. BORLAND of Pittsburg—We have in pneumonia, not only a weak or partially paralyzed heart, but also a markedly depressed condition of the vasomotor system all over the body. The cold-bath treatment is in vogue both as a local and as a general treatment. The local cold treatment in pneumonia seems to me too much like imitating nature's way of chilling the body, and it is not nearly as efficient as the general cold bath in stimulating the vasomotor control of the vessels of the body.

Dr. CAMPBELL—I did not have time to finish reading my paper. In reply to Dr. West I did dwell on the use of strychnin and alcohol when necessary. But what I wished to express fully was the influence of the nerve centers, the sympathetic system particularly, on the course of pneumonia. The toxins are absorbed and carried to the nerve centers of the cerebrum, and there cause paralysis, which affects the nerves, including the sympathetic ganglia, which Brown-Séquard has shown to be related to the heat production of the body. Cold applications stimulate not only the vasomotor system but also the sympathetic system, getting rid of the toxins and the ptomains through the sweat glands, the kidneys and the bowels.

HOT BATHS IN PNEUMONIA.

Read in the Section on Practice of Medicine, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY JOSEPH EICHBERG, M.D.

CINCINNATI, OHIO.

The hot bath, as employed at the Cincinnati Hospital, is given in pneumonia at a temperature of about 100 degrees. In the cases which furnish the material for this report the temperature of the water has been at times 95, at others 102 degrees; in a few cases a temperature of 110 degrees has been advised. Judged by results, no very great difference could be observed dependent upon the slight elevation of temperature in the water employed. A tablespoonful of whisky is given before immersion. The tub is moved alongside the bed of the patient and immersion of the body is complete, the level of the water rising to the chin. The stay in the bath is prolonged to ten minutes, during which time the face is frequently sponged with cold water. On emerging from the bath the patient, without previous drying of the skin, is wrapped in a warm dry blanket, in which he remains for half an hour. The bed clothing is then changed, the skin rubbed vigorously until dry and the patient left for the next three hours, when the process is repeated.

When first entering upon this plan of treatment, I thought of it only as an antipyretic measure, and the bath was advised when the body heat rose to 103 or 103.5 degrees. It was soon observed, however, that the good effects of the bath were to be found not so much in its antipyretic action, as in its influence upon the general comfort and well-being of the patient. From that time on, the bath was ordered wholly irrespective of the high or low degree of fever, and was given regularly every three hours.

I shall have occasion presently to refer to some figures. It is but fair to repeat what experience in hospital life has taught many clinicians, that in no acute infectious process are figures so likely to prove deceptive as in the case of this disease. Hospital cases of pneumonia afford, in the first place, the very worst material upon which to base working conclusions as to the value of remedial measures. Weakened by intemperance, exposure, privation or previous disease, the pneumonic process overtakes these patients at the lowest ebb of resisting power and speedily terminates a checkered existence.

Aside from this potent factor, which influences so greatly the percentage of hospital mortality, there is something in the type of the disease which makes its percentage of fatalities very variable. There are times when the number of cases received in public institutions is considerable enough to warrant the title of its epidemic prevalence; yet the number of recoveries is so great that too much is allowed for the operation of some particular therapeutic measure. In another series of cases the same plan of treatment signally fails. The startling figures of Petrescu with the digitalis treatment, showing a mortality of only 2 per cent. in upward of seven hundred cases, can be explained only in this way, since later experience has unfortunarely failed to confirm the vaunted universal efficiency of this drug.

Taking all these factors into account, I am strongly inclined to the belief that we have in the hot bath a powerful adjuvant in the management of this disease; nor would I ascribe to it any secondary rank, believing it to be of almost greater importance

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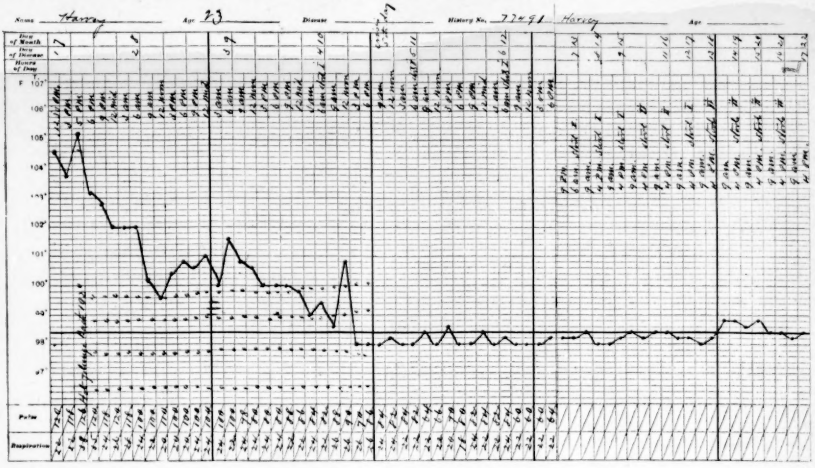

than any single feature of the treatment. The most powerful argument is found in the request of many patients for its repetition Strongly averse to its early employment, they soon experience so much comfort from its frequent application that in many instances patients have asked to be put in the bath before the time for its repetition had arrived.

This sense of greater comfort especially affects dyspnea, and thus strengthens tha impression now gaining ground that dyspnea in pneumonia is not dependent on the extent of pneumonic consolidation nor in any sense proportioned to it, any more than is pulse rate or temperature. It seems difficult to combat this old and at one time widely promulgated doctrine. On the day following the crisis, when the clinical picture has undergone so great a transformation, the physical signs remain unchanged. The dyspnea of the preceding period has wholly disappeared, yet there is quite as much consolidated lung as there was the previous day; and a considerable period may yet intervene before the affected lobe is wholly rid of inflammatory products. The dyspnea is to be interpreted as part of the intoxication due to specific infection, and resulting from the action of the poison on the mechanism of respiration.

It is just in this connection that the association of the skin with the mechanism of respiration deserves especial mention. Ordinarily, cutaneous respiration in the human being is of little consequence as far as the actual exchange of gases is concerned. Scharling and Hannover estimated that the exhalation of carbonic acid gas from the skin bore to the total amount the proportion of 1 to 130; Gerlach gives it as 1 to 200. So small a fraction as this could hardly influence the general well being. Much more important are the well-known experiments of Soskolow, Lang, Berne, Loschkowitz and others in suppressing the function of the skin by covering it, in its entirety or in limited portions, with a coating of some impervious material. As is well known, death promptly ensued when one-fourth or more of the skin had been thus treated; and death was not, as had been first believed, due to excessive cooling, seeing that the retention of the animals in warmed ovens only delayed, but did not avert, the fatal issue.

It could not be supposed that death was due to retention of excrementitious matter or auto-intoxication, for the blood of the animal that had thus succumbed was not toxic when injected into the circulation of another of the same species. The only probable inference was that death ensued as a result of the suppression of the respiratory stimuli emanating from the skin. The need for air, like the sense of hunger and thirst, is not a localized sensation, though referred to the larynx; all parts of the body participate in sending to the center the urgent message for more oxygen when the proportion falls below the minimum for actual consumption.

The temperature in some cases seems to be influenced but slightly by the bath, as far as immediate results are concerned, there being no strikingly rapid fall, though the general febrile course is certainly controlled in some measure; for there is almost always from the first day of the bath treatment a slight lowering of the daily average, which continues from day to day; so that the critical fall entails a drop of but two or three degrees, the temperature being nearly normal at the time of the crisis. At other times a striking improvement in the range of fever manifests itself; the accompanying chart may be fairly taken as a type of many that present an almost identical picture.

As an antipyretic, the hot bath is not less effective than many of the recognized aniline antipyretics. In my collection there is the history of one patient, a colored laborer aged 20, whose temperature on the second day rose to 105 degrees. He received 10 grains of phenacetin; one hour later another dose of 10 grains; the following hour a similar dose, the temperature still remaining at 105 degrees. When the infection is intense, no antipyretic measure is likely to be attended with very striking results. With the aid of the hot bath, many cases present a prompt decline. A laborer, aged 40, had an evening temperature of 104.6 degrees. The hot bath was given at 6, 9 and 12

P.M. The temperature steadily declined until noon the following day, when it was normal. It rose slowly to 101 degrees on the third day, but never exceeded this. The crisis occurred on the fifth day. In another patient after the sixth bath the fever declined from 104.2 to 99 degrees. Instances similar to these could be multiplied.

The effect on the respiration, while not so striking, is none the less certain. At times the change after the bath is so considerable that the diminished frequency must be regarded as conservative, enabling the patient to husband his strength. In the patient whose chart is shown the frequency of respiration before the bath was 35 per minute; after the second bath it dropped to 24 per minute. In other cases the difference was less, amounting to 4 to 6 per minute; even this improvement is not to be disregarded in a disease in which the resisting power of the individual turns the balance for or against recovery. In another patient one bath reduced the frequency of breathing from 42 to 30 per minute. Two recoveries are noteworthy; one where the respirations were 80 per minute, nother where for three days the rate was 60 per minute.

The greatest relief is experienced in the prompt suppression of certain nervous symptoms of rather frequent if not constant occurrence. Of these one of the most distressing is a sense of "indefinable unrest," a term employed by a colleague now passing through his convalescence from a pneumonia of the left lower lobe, and who, after his second bath, marveled at the placidity and comfort experienced. Similarly, great benefit is experienced in combating the insomnia which enters very regularly into the early history of the attack. Delirium subsided promptly in all cases except those complicated with alcoholism or meningitis.

It may have been mere coincidence, or it may have been due to the bath, that many of our patients seemed to void larger quantities of urine than did those in the ward where this treatment was not regularly employed. I am unwilling to express final judgment until our observations shall have been more fully verified. It is not unlikely, however, that the dilatation of the peripheral vessels following the bath may involve other small arteries in the systemic circulation and thus allow of more ready filtration through the kidney.

The pulse is modified by the systematic use of the hot bath rather in its quality, than notably in frequency. The hard, bounding, vibratile pulse of what our fathers called sthenic pneumonia, gives place to a pulse that is softer, more gradual, compressible, not lacking in force, while wholly without the thrill connected with the earlier periods. In this respect the hot bath can be confidently counted upon to modify the pulse in the same manner observed after the former regulation process of blood-letting. Indeed, the hot bath gives us the power of letting blood without losing it; by opening up the superficial arteries and capillaries, we obtain an action that equalizes the circulation in furnishing channels other than the congested pulmonary vessels, to which the afflux would otherwise take place. It may be that it is of no especial advantage to the patient to retain a blood undoubtedly charged with many toxic principles; but it is easier to save it than to reproduce it and, as already stated, the power of resistance counts for much during a process essentially short and self-limited.

In how far the local process itself is influenced it might seem venturesome to say. On several occasions, four that I now recall, the first examination had shown impending involvement of an entire lung; dulness on percussion, increased resistance and diminished or absent breath sounds being found over an entire side. After the use of the bath the limitation of the process to a single lobe has been clearly evident, the unaffected lobe clearing up very promptly. This may have been occasioned by the relief of a collateral congestion which would never have advanced to consolidation, or the bath may have actually limited the distribution of the disease by prompt diversion of blood to the surface.

Still more difficult is the determination of any increased elimination of toxic material through the skin, in consequence of the bath treatment. That such toxic products exist may be inferred from the leucocytosis accompanying the disease, from the increased toxicity of the urine at the time of the crisis, as shown by Roger and Gramme; from the frequency with which death occurs by the heart at a time when convalescence seems established and acute symptoms have subsided, and from the actual discovery of the pneumococcus in the blood. Thus Kohn examined the blood in thirty-two cases with negative results in twenty-eight; eighteen of them recovered. Of the remaining nine, seven showed the pnuemococcus and died, the other two died from staphylococcus empyema. Admitting that such toxic principles probably exist, the patient's chances are only likely to be improved by stimulating the skin to further activity; the hot bath offers opportunity for doing this in the simplest manner.

Patients receiving the bath are allowed full, nourishing, concentrated diet. The bowels are moved regularly by enema. Medication has generally consisted of small doses of digitalis and strychnia. Expectorants were ordinarily not found to be necessary.

The hot bath may be given at any age. The oldest patient who recovered was 73 years old. It is universally indorsed for children, on the plea that the use of warm water prevents the nervous shock attendant on the employment of colder baths, such as are recommended for adults; but the adult patient with pneumonia also dreads his cold bath; and the necessary stimulation for the reflex respiratory act can be elicited equally well by bathing the face and head with cold water while the patient is immersed. The frequent repetition of the bath does away with the necessity for local dressings, while the interval of three hours has proven sufficient to allow for rest and sleep.

The number of baths to be administered will vary with the character and duration of the case. I can only repeat that the fever furnishes no indication for the use or repetition of the bath. The average may be given as five or six per day during the febrile period and one or two daily for several days thereafter. The largest number in my table, based upon carefully kept records of ninety cases, was given in the case of a butcher, aged 34, who had successive involvement of three lobes; each new attack supervened as the old approached the crisis, so that the acute period of his disease extended over twenty days. During this time he received 137 baths. The patient recovered. Another patient, a cigar-maker, aged 19, suffering from an old mitral regurgitation upon

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which the pneumonia supervened, received seventy-four baths in eleven days and recovered. A third patient, a fireman, suffering from an old caseous phthisis of both apices in addition to his pneumonia, received thirty-three baths in six days and completely recovered from his pneumonia.

Recourse to the bath from the earliest period of the disease is to be strongly commended. Naturally the diagnosis must often be deferred for three or four days, owing to obscurity in physical signs. When, however, the nature of the disease is no longer doubtful, the bath treatment should be promptly instituted. Experience has shown that the patient is thus kept in better condition and the course of the process influenced more decidedly than if the bath is given at a later stage.

Of the ninety cases forming the basis of this report seventy-one recovered and nineteen died. Four of these were moribund on admission, and of the others there was the usual contingent of chronic nephritis, pericarditis and tubercular diseases; six died quite suddenly, two on the fourth and two on the seventh day, while the remaining two succumbed when all danger seemed past, one expiring during a meal, the other just after he had answered that he was much better.

I believe that wider experience with the hot bath will but add to the conviction of its general utility in the management of one of the most fatal of acute diseases. In private practice the mortality is not so appalling, but in hospital life no other acute process claims so many victims. Where the bath can not aid in cure, it rarely fails to assuage, and it is not the least of the physician's duties to bring comfort to the sick.

DISCUSSION.

Dr. WISNER of Baltimore—I would ask the author whether there was free diuresis after the bath, and what was the temperature. I have had a considerable experience with the tepid bath in the pneumonia of children among poor people, especially among people not given to cleanliness. Repeated tepid baths, three or four a day, were sufficient in many instances without any other medication to alleviate the symptoms and hasten the cure in the cases where there was no constitutional taint to make the disease a mixed one.

Dr. F. S. NEVELING of Clearfield, Pa.—I rise to favor the warm bath. With regard to the lancet, while years ago it was used too freely, I think that of late years some do not use it enough. In some cases of pneumonia especially it will give the greatest relief. I have employed it, in certain cases, more than twenty years and have never regretted it, except in one instance. I do not bleed in every case, but when I find a very severe one in the early stage the withdrawal of some blood gives almost immediate relief. I have treated no fewer than two hundred cases of pneumonia and of that number have bled, I presume, 25 per cent. It is contrary to the treatment laid down in the books and I always hesitate to say anything about it, but I have been so successful with it and it gives so great relief that I think it should be resorted to not only in pneumonia but in some other diseases as well.

In reply to an interrogatory when he used bleeding, Dr. Neveling said: When the temperature is high, the patient very restless, the lungs engorged, the heart's action embarrassed. Bleeding seems to stimulate the heart, the patient soon falls into a peaceful slumber and then perspiration breaks out. I order warm baths every three hours after that. Later judicious stimulation may be of benefit. I know that if the patient should die I would be told that I had killed him, but I have never yet lost one that I have bled.

Dr. S. SOLIS COHEN—What has been the influence of the baths on the urine? What about the temperature of the bath?

Dr. EICHBERG—Very frequently, when the patient is taken out of the bath the amount of the urine is increased. He is wrapped in a hot blanket and left an hour without any drying, and is then dried only in case the skin is very active. As to bleeding, I felt sure that would arise in the discussion. One of the objects of the paper was to call attention to the fact that the bath took the place of the bleeding. The temperature of the bath is higher for debilitated patients. With regard to the cold water treatment, there was a man who, on sending his boy out into the world, gave him this piece of advice: "My son, honesty is the best policy. I know, for I have tried both."

CURABILITY OF PULMONARY TUBERCULOSIS.

Read in the Section on Practice of Medicine, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1-4, 1897.

BY E. B. BORLAND, M.D.

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Evidence has been recently accumulating, which goes to show that tuberculosis is not only a universal but *the* universal disease. Postmortem examinations made in recent years, point to the probability that 25 per cent. is much too low an estimate of the total number of infections.

Schlenker made one hundred consecutive postmortem examinations on children and adults for this special purpose. He examined every part of the body, especially the cervical and mesenteric glands and apices of the lungs, and found 65 per cent. tuberculous. Caseous and calcareous degenerations were considered tuberculous but simple fibroid adhesions were not so considered. In over 4,000 successive postmortem examinations made in Breslau in 1893, one-third of the bodies contained gross tuberculous lesions. If the microscope had been used, probably enough lesions could have been discovered to make 2,500 infections.

Turning to pulmonary tuberculosis, Babes found lesions of the bronchial gland in more than one-half of his postmortems on children. Biggs could demonstrate characteristic lesions in the lungs alone, in 60 per cent. of his postmortem examinations. Grawitz found primary tuberculous deposits in the lungs in 152 out of 221 cases, being nearly 70 per cent. of all infections. Loomis found the bronchial glands infective to rabbits in eight out of thirty bodies apparently free from tuberculosis during life. Long before Koch discovered the tubercle bacillus, Louis laid down the rule, that if tuberculosis was found in any other part of the body it would be found in the lungs.

From the above observations, it will be a moderate estimate to say that nearly 50 per cent. of the human race are infected at some period of life with tuberculosis, and further that two-thirds of all infections are pulmonary. The greater frequency of the pulmonary over all other tuberculous infections is directly due to the inhalation of fine particles of dried sputum, containing tubercle bacilli and the pus-producing germs.

Large as the death rate (14 per cent. of deaths from all causes), when the number of cases which remain latent through life, is taken into consideration, the tubercle bacillus does not seem to be a markedly virulent germ. It requires, besides its own existence, two additional essential factors, viz., debility and abrasions, before infection is possible. Without the addition of septic germs, pulmonary tuberculosis would not in all probability, be the fatal disease it is today. The vile habit which American people have (for Europeans consider it an evidence of ill breeding) of expectorating on floors and sidewalks, has much to do with the transmission of septic germs as well as tubercle bacilli, to the lungs. All advanced cases are associated with streptococci.

While the bacillus is the keynote to the identification of tuberculosis, it has probably less to do with the fatal termination than was formerly supposed. When the blood and juices of the body contain pus-producing germs in eight out of fourteen cases, the septic germs must be held responsible for at least one-half of the destructive process.

Nature can wall up tubercle bacilli with bodies of leucocytes and connective tissue cells, for life, but can not imprison septic germs for any great length of time. If, as it seems probable, tuberculous lungs die mainly of the engrafted septicemia, then tuberculosis without sepsis or where sepsis can be avoided, is a disease capable of permanent relief. It is well known that hectic fever of the ulcerative stage, is mainly due to streptococci and staphylococci. The large proportion of cases dying of septicemia, probably explains the failures of tuberculin and tubercle antitoxins. Original investigation is always to be commended so long as there is a ray of hope, but since not a single antitoxin has been discovered, for any chronic disease, the scientific physician will do well to use, to the full extent of his ability, the older light which still shines clearly.

Tuberculosis uncomplicated with sepsis, may be considered a curable disease, in the sense that it may be held in abeyance, that is to say, kept in a latent condition for a lifetime, providing the vital resistance of the individual is kept up to the normal standard. Nature has been known to completely eradicate it in a limited number of cases. The scientific physician will endeavor to imitate nature as far as he can interpret her methods.

Investigations in search of an antitoxin have demonstrated that there is no immunity against tuberculosis when the three essential factors of infection, viz., debility, abrasions and bacilli are present. If there was anything in the theory of immunity, a child born of an infected mother ought to be less liable to infection after birth, other things being equal, on account of its being almost constantly inoculated with toxins during intra-uterine life.

The question arises, can tuberculosis be cured in all to all intents and purposes in its latent stage? It has been demonstrated that two-thirds of all infections either disappear or remain quiescent during an average life. If nature can accomplish so much under the reign of mainly empirical medicine, what will she be able to do when the physician concentrates all his energy on building up and maintaining the vital resistance of cell life, and keeping septic germs, as well as tubercle bacilli, away from the latent infection.

If latent pulmonary tuberculosis is to be taken proper care of and its curability further increased, it must be discovered promptly. This is too infrequently done at the present day. The early suggestive general signs of chronic indigestion, flushed cheeks, enlarged lymphatic glands, anemia, scanty or suppressed menses in the female, dislike for meats (especially fats) and the special early signs of a small localized area (in one lung) of harsh respiration which persists, usually in smaller bronchial tubes, jerking inspiration and prolonged expiration, impairment of the percussion note, especially in the apices, and a chest expansion of less than three inches, are over-looked when they ought to be discovered and their importance carefully weighed in the mind of the physician.

The curability of disease is not necessarily connected with the exhibition of drugs. In fact nature alone cures, while the scientific physician only aids her.

The hygiene of latent pulmonary tuberculosis must receive more attention if it is to be more curable. Moderately dry aseptic air containing as much ozone as possible is *the* matter of vital concern. Altitude itself has probably little influence. True, the lungs expand and unused air cells are ventilated at the expense of the life-giving element oxygen. The watchword should be, keep latent pulmonary tuberculosis as free from the death-dealing putrefactive germs as possible. Attention to the excretory organs, especially the skin, will materially aid in crushing out or keeping pulmonary tuberculosis latent. The skin throws off toxins promptly under circumstances when the other excretory organs are unequal to the task. Woolen clothing assists this excretory process; cotton checks it. Wool is a poor conductor of either heat or cold and is therefore always indicated. Nature clothes the lower animals with wool, while only foolish man insists on wearing woody fiber and as a result he suffers.

It is self-evident to any careful student of dietetics that the animal foods (except pork) require less digestive and assimilative force and elaboration, to build them up into physiologic tissue, than foods from the vegetable kingdom. Digestion may be regarded as the balance wheel and should be carefully guarded. Such agents as cod-liver oil, preparations of creosote, iron, phosphorus, strychnia or oil of cinnamon, may be employed when the vital resistance falls much below the normal standard.

Moderate pulmonary gymnastics have an important bearing on the individual's future prospects for life and health.

The author has nothing new to offer on the curability of the ulcerative stage, that is to say, the well developed mixed infection. Perhaps less than three per cent. throw off both infections and fully recover. In probably 20 per cent. the disease becomes quiescent, and remains for a number of years and is then lighted up again. The average life of the remaining 77 per cent. may be placed at two years.

Recent investigations in search of specific treatment have not discovered any factor of much value in the cure of the mixed infection. The posting and enforcing the placard "gentlemen will not, others who do not class themselves under this title, must not expectorate on floors and sidewalks," would do more to improve the prognosis of either stage of pulmonary tuberculosis than all the toxin or antitoxin treatments of the last decade, from Koch's original tuberculin down to his TA, TO and TR.

The belief that tuberculosis is inherited has done much to propagate the disease as well as to lessen its curability. Fortunately very few physicians now place much emphasis on heredity or question the contagious nature of the disease. Those who do, have not examined the almost incontrovertible proofs. Men who doubt the existence of a specific germ or question its power to do harm, are not only clogging the wheels of preventive medicine, but of curative measures as well.

Believing that pulmonary tuberculosis is a germ disease, frequently associated with the more virulent septic germs is a decided advantage in formulating a rational therapeusis. While no germicide has been discovered which will kill the germs without destroying the tissues in which they are planted, yet much

can be done toward neutralizing and eliminating toxins, and even inhibiting the growth and multiplication of the germs themselves.

Too many medical men, with almost unused measures of relief within their grasp, are today lying supinely on their backs, hugging the delusive phantom of an undiscovered specific treatment, while the great white plague, with its insatiable, relentless and ruthless ally, is still destroying thousands of valuable lives which ought to be saved.

ANTITOXIC SERUM FOR TUBERCULOSIS.

Read in the Section on Practice of Medicine, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

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In speaking briefly of the preparation and use of antitoxic serums in my laboratory, it may be of interest to note a few points which indicated the advisability of the method I have used for treating animals to produce the desired serum.

The preliminary experiments, published in 1894[1] on the production of an immunity or resistance to tuberculosis by attenuated cultures, have been continued and are confirmatory of the first results, showing the production of great resistance and in some cases complete immunity. A detail of two sets of these experiments may be given as an instance of their general results.

TABLE 1.—Two sets of experiments showing the average of results in experiments in which the guinea pigs were vaccinated with attenuated germ and then inoculating with virulent germ.

No.	Date of inoculation and amount of atten. germ.	Weight, ounces, October 24.	Weight, ounces, November 2.	Condition.	Date of inoculation and amount of virulent germ.	Weight, ounces. Dec. 16.	Jan. 7.	Jan. 19.	Feb. 2.	Feb. 8.	April 8.	April 19.
373	Oct. 24 1½c.c.	12	14	O.K.	Dec. 9, 373, 375,	.	.	.	.	.	.	.
374	50th gen-	10	11	.	378 died from	14	16	16	15½	16	16	14
375	eration.	16	15	O.K.	pneumon. 374,	.	.	.	.	.	.	.
376		16	14½	O.K.	376, 377 each re-	12	15	15	15	15	16½	18
377	Check . . .	13	13½	O.K.	ceived ⅛ c.c.	12	13	12½	died	.	.	.
	1½ c.c. atten.				4th generation	.	.	.	.	.	.	.
378	germ . .	14	14	Thin.	from rabbit.	.	.	.	.	.	.	.

No.	Dec. 21.	Dec. 26.	Dec. 2—oz.	Dec. 21—oz.	Feb. 12—oz.	March 8.	March 16—oz.	April 1—oz.	April 19—oz.	April 21—oz.
2			13	14	16	All, including	16	chlor of'rm	ed	
3			12	15½	14	checks, 10 and	17	17	19	. . .
4			15	16	17	11, inoculated	20	21	20	. . .
5			18	15	16	with virulent	17½	19	19	. . .
7			14	13	14	germ, ⅛ c.c.	16	16½	18	. . .
8			15	15	16		17	16	18	. . .
9			12	13	11		14	15	16	. . .
10			. .	16	16	18 oz. Ch'ks	17½	14	12	dead.
11			. .	15½	16	17½ oz. (Mar. 6th.)	17½	dead.	.	. . .
12			16	16	16		18	19	19	. . .
13			14	15	16		18	17½	16½	. . .
15			15	16	18		18	14	.	. . .
16			15	15	17		18	18½	20	. . .
17			12	12	13		15	15	14½	. . .
18			15	15	16		16	17½	17½	. . .
19			14	13	14		13	13	12½	. . .
20			15	18	18		20	19	19	. . .

All but 10 and 11 (checks) received 1½ c.c. of sixty-first generation.

All given 1½ c.c. of sixty first generation except checks 10 and 11.

The first effect of the injection of the attenuated germ was, in some instances, to cause a slight decrease in weight; sometimes a local swelling was noted at the point of injection, and occasionally an enlargement of the inguinal glands. This disappeared after some weeks. This local swelling is probably due to the mechanical action of the bodies of the germs on account of their high fat content and possible presence of a minute amount of the acid causing necrosis. It does not always result from a subcutaneous inoculation and an apparent immunity to this action is acquired by repeated injections. This is well shown in horses and cows submitted to treatment with the attenuated germ. From six to eight weeks after the date of the injection of the germ guinea pigs seem to be entirely well, and are then inoculated with the virulent germ. As can be seen from the table, the checks died within six weeks from date of inoculation while the others, vaccinated remained well four months afterward. It has appeared, from the many experiments, that, if the inoculation with the virulent germ is made before complete recovery from the treatment with the attenuated germ the resistance is considerably less. The inoculation of the animals with the virulent germ and subsequently with a single injection of the attenuated germ showed that the latter produced a slight resistance but no very material retardation of the disease.

The production of this partial immunity or artificial resistance by means of the attenuated germ suggested already in 1894 the availability of this same material for the purpose of treating animals for the production of a serum which would have some effect in curing tuberculosis. It suggested the idea further that possibly cattle could be vaccinated with this attenuated germ and made immune to tuberculosis.

TABLE 2.—Serum from horse injected with attenuated culture used on tuberculous guinea pigs.

No.	Weight—ounces.	Date and amount of virulent culture.	Dates and amount of serum injected—ounces. Nov. 6.	Nov. 17.	Nov. 25.	Dec. 3.	Dec. 8.	April 19.	
434 ch.	10	Oct. 24, ¼ cc of virulent tuber. culture given to all. All except check received 1½ c.c. of serum.	10	8½	8	dead.	.	.	.
435	9		*9	*8	*8	.	9	20	†
436	11		*10	*9	*7	dead.	.	.	.
437	14		*13	*11	*10	.	10	20	†
438	9		*8	*8	*6	dead.	.	.	.
439	8		*8	*7	*5	.	.	.	.

*Plus 1½ c.c. †Alive and well

Two cows and one heifer were selected for the work which was conducted for us by Dr. Schroeder in charge of the Experiment Station of the Bureau of Animal Industry. One of these animals was originally tuberculous, the other two healthy. The tuberculous animal received large doses of tuberculin until it had received altogether 19,407 c.c. (19½ liters), and as much as 1,500 c.c. of tuberculin at a single dose, from November 1894 to April 20, 1897. The other animals received injections of the attenuated culture, the amount injected in fifteen months being 11,425 c.c. and 18,100 c.c. respectively, and by this I mean the liquid culture media *in toto*, including the germs, just as taken from the incubator without any further treatment. At first the injection produced a slight reaction and occasionally a local edema and abscess. After they had been continued for some time this effect diminished or disappeared. The serum of all of these animals was tested a number of times. Guinea-pigs were injected with the serum in quantities varying from 1.5 to 6 c.c., and subsequently inoculated, together with checks, with a germ sufficiently virulent to kill the checks within four to five weeks, or the pigs were inoculated with the virulent germ and treated by subsequent injec-

[1] Medical News, Dec. 8, 1894.

tions of the serum. Without giving the details of the experiments we may say that the serum from the cow treated with tuberculin would cause in the pigs a slight resistance to the germs, the serum of those treated with the attenuated germ produced more resistance on the part of the animals or prolonged their life to some extent but not sufficiently as compared with the quantity of material injected to make the use of cow serum appear practical. The cow serum, although sterile, frequently produced abscesses in guinea pigs. This serum we expect to test again shortly, when it should be stronger.

While these experiments were in progress two horses had been pressed into service. These were treated by injecting the attenuated cultures, culture fluid germ and all. The first injection of 5 c.c. caused a decided temperature reaction, local edema, stiffness, slight loss of appetite, and recovery after a few days. At first local abscesses were formed but healed fairly readily. After a time the abscess formation ceased. After eight months treatment the doses of the culture being gradually increased to 300 to 400 c.c., the total amount injected in fifteen months equaling 4,459 c.c.; the serum was used for testing. It separated out clear and well. Two sets of illustrations may be given to show its action on tuberculous animals. In one set the checks and two treated pigs died, the other two treated pigs are alive and in apparently perfect health, after a number of months. In another set the checks four in number died within four to five weeks, while the treated ones lived two or three weeks longer showing, on autopsy, much less disease in the lungs than did the checks. We endeavored, further, to isolate antitoxic substances from the serum by a slight modification of the Brieger-Boer method. We finally succeeded in obtaining a small quantity of a grayish powder, giving the biuret reaction, difficultly soluble in water, which was used for treating guinea pigs in the same way as the serum. The result was about the same as in the first instance. The pigs one-half pound in weight were inoculated with a virulent germ and treated by a single injection of 0.008 grams of this solid substance. They lived three to four weeks longer than the checks, the lungs again showing considerably less disease, while less necrosis was noted in the liver than in the checks.

The effect of the serum was also tried in preventing the rise of temperature in tuberculous guinea pigs and in saving them from a fatal dose of tuberculin. The injections of $\frac{1}{4}$ c.c. of diluted tuberculin and at the same time of $\frac{1}{2}$ c.c. of the serum, either caused a decided reduction of the temperature or prevented a characteristic tuberculin reaction in animals weighing 500 grams. This is the way (at present) of gauging the effect of the serum.

The result of all this work leads me to the conclusion that the injection of the live culture produces substances antitoxic to the disease in tuberculous animals, that the quantity of this substance can be increased gradually, that the treatment of tuberculosis is and will be for some time in the experimental stage. One point, however, must be remembered, viz., that while it may be difficult to cure the disease in a guinea pig where its course is very rapid, a virulent germ requiring only from four to five weeks to kill, it might be much easier to check the disease when more prolonged in action, as in the majority of cases in man. Again, in addition to some form of specific treatment for the disease, man usually has the advantage of being placed under the best possible surroundings as to diet, climate, etc., and every effort is made to aid the improvement of the patient, while with experimental animals the conditions are different. The results obtained undoubtedly lead to the conclusion that while the treatment with antitoxic serum is still in the experimental stage and should be as yet used only in sanitariums and under the best conditions, we are on the road to success and nearer our goal than ever before. In an experimental way, the antitoxic serum as prepared in my laboratory, has been used by Dr. Stubbert at the Loomis Sanitarium, and some by Dr. Trudeau at Saranac Lake, as well as by Dr. C. W. Richardson in this city. Dr. Richardson has reported beneficial results and improvement in his patients from the use of this material. Dr. Trudeau has found that the serum causes a remarkable reduction of temperature, and Dr. Stubbert records satisfactory results. Two of Dr. Stubbert's cases will serve to indicate its general effect.

Serum from U. S. Department of Agriculture, Bureau of Animal Industry, Biochemic Laboratory, used at Loomis Sanitarium, Liberty, N. Y. Age, 14 years; American; school boy. Treatment began Feb. 23, 1897. Feb. 23, weight, 90 lbs.; general condition good: consolidation slight; no cavities; no râles: very little cough and expectoration; no tubercle bacilli; temperature normal; serum injection, 10 minims. Feb. 27, weight 91½ lbs. March 1 and 7, no tubercle bacilli; temperature normal. March 9, weight 94½ lbs; cough and expectoration less. March 15, no tubercle bacilli; temperature normal. March 25, no cough or expectoration; no tubercle bacilli; temperature normal. March 29, weight 95 lbs. Result: Gained in weight and general condition until discharged.

Serum used at Loomis Sanitarium, Liberty, N. Y. Age, 20 years, female, German, nurse. Treatment begun March 1, 1897. March 1, weight 119 lbs.; general condition good; consolidation, incipient stage, infiltration; no cavities; râles, sibilant and sonorous right lung apex to base, left lung at apex; cough bad at times, expectorates very little; temperature normal. March 13, no tubercle bacilli. March 23, no tubercle bacilli. March 29, weight 129 lbs., general condition good, no cavities; sonorous râles, second interspace, left side. April 1, no tubercle bacilli. April 7, weight 130 lbs.; râles only on deep inspiration, very nearly disappeared. April 13, no tubercle bacilli. Result: The patient's general condition was good when the series was started. Tubercle bacilli were present on admission in December, 1896, but had disappeared in February, 1897. There has been no unfavorable reaction from the use of serum; the rales and other physical signs have improved; she has gained in weight, coughs less and does not expectorate: she is able to take long walks and other exercise.

It may be noted that the serum used in these cases was from the same animal as the serum which cured the guinea pigs recorded above. While these results are exceedingly encouraging and there is a possibility of obtaining a serum for tuberculosis which if not specific may be very beneficial, I do not believe that investigatiors are warranted in recommending for general clinical use with lurid promises as to its wonderful results, a material which has not in each and every instance been tested upon experimental animals and had its efficiency actually proven.

Maragliano, Babes, Behring and Paquin are the other principal workers in the preparation of antitoxic serums. Maragliano (*Revue de la Tuberculose*, Juillet, 1896, p. 131) gives the method he has used for the production of antitoxic serum, and notes that there is present, in the cold filtered cultures of the tuberculosis germ, a substance which causes the reduction of temperature and another not destroyed by heat, which causes the rise of temperature. In all probability, without isolating the principle Maragliano was using solutions of the same substance we described in a paper before the

American Physicians, May 6, 1897. While this is not destroyed by heat, as he seems to think, it does undergo some change by probably combining with the albuminoid matter in the media and thus losing its distinct property as a temperature-reducing substance. The serum which he claims to obtain from his treatment of the animal has some effect in reducing the temperature and apparently improving the disease.

In the *Zeitschrift für Hygiene* (Bd. 23, Hft. 3), Babes, in reviewing a portion of the work on the treatment of tuberculosis with serum, comes to the conclusion that he is the first individual to have discovered any antitoxic properties in this serum, that there is an antitoxic substance present in treated animals, but that it has not yet been brought to a sufficient development to warrant general use.

Our experiments lead us to conclude, that while the injections with tuberculin produce in healthy animals, a serum containing antitoxic material the amount of this is small; and that the injection of the live culture is the proper treatment. We can not agree with the statements that horses are unsuitable for the work. Mules and donkeys may perhaps give quicker results but horses seem to be entirely satisfactory. At no time have we found that the horse serum produces toxic effects, although these have been noted from the cow serum. If the antitoxic serum treatment for tuberculosis could be freed for the present from its commercial aspect, and careful systematic experiments continuously conducted in numerous hospitals and sanitariums, this or a similar modified method of treatment could be looked to for good results. When tuberculosis can be uniformly cured in guinea pigs, as certainly as diphtheria, then does the commercial aspect become a fair and legitimate one. In the meantime the laboratory worker desires the intelligent coöperation of the clinician who will be desirous not only of curing his patient, but of advancing the theory as well as the application of those principles which, with the expenditure of many years time and often at great personal risk, have been made intelligible.

INTERRUPTED RESPIRATION; A STUDY OF CERTAIN PHYSICAL SIGNS OF DISEASES OF THE CHEST.

Read by title in the Section on Practice of Medicine, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

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DENVER, COLO.

The very unsatisfactory condition of our knowledge, as presented in our text-books, regarding the causation and significance of those physical signs grouped under the general head of "interrupted respiration," has led me to study these signs with considerable care for some years, and I present today some of the results of this study.

It is apparent at the outset that, by different writers, several totally different signs are considered under the general terms, "interrupted, cogwheel and wavy respiration," including irregular inspiration from weakness of the respiratory muscles; irregular action on account of painful affections, as pleurisy, pleurodynia and intercostal neuralgia; cardio-respiratory murmur; irregular inspiration from excitement, affecting either the respiratory mechanism itself or the heart, producing a systolic interruption in the latter case, covering the whole chest in certain cases; interruption from the presence of swelling of the mucous membrane of the bronchi; from the presence of gelatinous mucus in the smaller tubes; from outgrowths of tubercles into the caliber of the tubes; from compression of vessels of the lung by contracting pleurisy, or by fibroid or other contractile processes in the lung itself; from pleural adhesions, and possibly from other causes.

In order, then, to arrive at a proper conception of its real value, we must define more narrowly what we mean by interrupted respiration, for it is obvious that some of the phenomena we have spoken of have no pathologic significance. Let us investigate the different matters we have mentioned.

Flint, Powell and others speak of irregular rhythm heard over the entire chest in perfectly healthy persons of very nervous, excitable temperament, due to irregular or spasmodic action of the muscles of respiration, as in crying children or sobbing women. The mere mention of this form of irregularity will suffice, since it has no importance in diagnosis or pathology.

The disturbed rhythm caused by the painful affections just mentioned should be so obvious as to its causation as to present nothing of interest in this connection, for it has no known connection with any pathologic condition of the lung tissue proper.

The interrupted respiration from weakness of the respiratory muscles, mentioned by Liebermeister, is of importance only because such weakness would probably predispose to the development of tuberculosis, since decided inactivity of the lungs must follow as a result. I have not recognized this form of respiration.

Many writers have spoken of systolic interruption, ordinarily as occurring on the left side only, especially in front, and upon inspiration, the inference, avowed or not, being that it is due to the compression of air in the lung, and consequent displacement of that in the bronchial tubes, directly by the heart's action (the so-called cardio-respiratory murmur). The fact that such a condition exists upon auscultation over the entire chest during excitement, occasionally, would lead to a consideration of the possibility of its being due to an unusually forcible current of blood passing through normal arteries in the lung tissue, possibly thus changing its volume, by unusual filling of the vessels, so as to influence the air contained in the tubes. The possibility of such a phenomenon from aneurysm or dilated aorta, must also be borne in mind.

It is much more common, I think, to find systolic interruption of respiration in cases of fibroid phthisis, especially upon the left side, in which decided contraction of the affected lung has occurred. The description of a recent case of my own, in which this phenomenon was exceedingly well marked, will answer for that of the group in general:

W. P., male, 26 years of age, of good heredity, had pleurisy with effusion six years ago, and developed a slowly progressing phthisis. At the present time he has a decided retraction of the left apex, the shoulder being one and a half inches below the right, and the heart being so much drawn upward and to the left that its apex is found in the fourth space, slightly to the left of the nipple. Much of its anterior aspect has been uncovered by the retraction of the lung, giving rise to increase in its dulness. Over the left lung above the fourth interspace are found decided

dulness, loud bronchial respiration, bronchophony and occasional coarse moist and leathery râles, the latter with a creaking character. Interrupted respiration has existed in parts of the left lung for some years.

At present, most markedly over the left back, between the left scapula and the spine, where there is a fair resonance, and somewhat below this area, may be heard, when the patient takes a slow inspiration, a systolic interruption of inspiration so marked that the heart's action may be observed with as much ease, so far as the estimation of its frequency is concerned, as over the precordial area. During expiration the interruption is less marked, but still easily heard. The sound is exactly that obtained by pressing with the bell of the stethoscope over the subclavian artery in many tuberculous patients, excepting that it is fainter and less distinct. It certainly has to me every appearance of being caused by the forcing of blood through arteries narrowed in caliber by pressure from without. In this case such narrowing might have been caused either by old thickening of the pleura, or by fibroid contraction of the lung with resulting compression of its contained arteries, or by both processes acting in conjunction. It seems probable that the branches of the pulmonic artery are the ones involved, because of their much greater size.

If this phenomenon were due to displacement of air in the bronchial tubes (as mentioned by certain authors), by the expansile pulsation of the heart, it should be much more common than it is, and in this case should be found near the heart in front, as well as in the back. Under either hypothesis, however, we may account for the fact that such interruption is often found on the border of the contracted lung, where there is but slight if any dulness, for the sound might be as easily propagated in the tubes as in the blood vessels.

Sahli and others have thought that in certain cases interruption of respiration occurs from the presence of gelatinous mucus in the smaller tubes, yielding slowly to the in-coming current of air, a theory accounting more satisfactorily than any other, I believe, for those cases in which the interruptions are not synchronous with the cardiac pulsations, and in which the sign under discussion is confined to a region bordering upon a localized area of tuberculous infiltration, particularly in the apex of the lung. To my mind, the chief objection to the explanation lies in the fact that the sign is more constant in a given case than such an origin as that mentioned would lead us to anticipate.

Some cases are thought by Sahli to be explainable upon the ground of a swelling of the mucous membrane lining the tubes, yielding in a valvular manner to the advancing air current; but probably not to the expiratory wave, we should be obliged to infer, because of the comparative rarity of the phenomenon in expiration. It seems that some of the cases, presenting what to me sound like two or three distinct suction sounds during the course of inspiration, are best explained upon this hypothesis.

Musser mentions stoppage of the current of air by outgrowths of tubercle. While certainly possible at times, such an explanation could scarcely apply in any great number of cases, since the sign is too often seen in the chests of patients in whom, from the history and the physical examination, there can be no grounds for the belief in the existence of such tubercles.

Powell once saw the most marked interruption of respiration in a case in which autopsy showed a cavity with a small aneurysm near its margin. The signs of a cavity were also present. This is obviously an exceptional case.

There seems to be reason in the suggestion made by Walshe, that possibly interrupted respiration may occur "from textural disease in the lung itself, causing a want of uniformity in elastic and expansile power." In some cases, Walshe believed that pleural adhesions might act in similar manner to prevent the regular and uniform expansion of the adjacent lung tissue.

I can not understand how subpleural nodules could cause a friction sound so resembling the sign in question as to deceive the experienced ear, although Ruehle apparently thought so. His theory of the compression of the bronchi by nodular growths, which might certainly interfere with the passing air current, seems tenable under certain circumstances, however, these acting in the same way that outgrowths of tubercular tissue or swelling of the mucous membrane may act.

I think we may reasonably conclude, then, that interrupted respiration may originate in so many different ways that but little importance should be attached to the sign excepting as a confirmatory one, especially in conjunction with more reliable ones, such as bronchial râles, dulness, bronchophony, bronchial respiration, and particularly broncho-vesicular respiration. The presence of the sign should always warn us to seek more carefully than otherwise for further signs of respiratory disease; while in certain cases, in which one could possibly decide with reasonable certainty that the interruption was due to some particular one of the several causes mentioned, he would be justified in basing his judgment of the case to a certain extent upon this factor.

IMPROVED METHOD OF COCAIN ANESTHESIA.

BY J. F. OAKS, M.D., PH.C.
CHICAGO.

My apology for the following polemic on a brief article entitled an "Improved Method of Cocain Anesthesia for the Nasal Mucous Membrane," which appeared in the JOURNAL of May 22, p. 976, is the fact that the general use of so dangerous a drug as cocain demands our scrutiny of the various methods of its employment. In the article referred to Dr. Anderson gives his method of local anesthesia, which consists in a preliminary use of a one-tenth per cent. solution of cocain as a spray to the nasal mucosa, which after being repeated in thirty seconds is followed by the use of a 25 per cent. solution on a probe, armed with a whisp of cotton.

The object of this kindly criticism of Dr. A.'s method is to check any tendency the article might create to the too bold and free use of that dangerous drug.

The "preliminary spray of a one-tenth per cent. solution" may appear to some to be unnecessary, yet it is believed by some authorities that the preliminary generalized use of cocain in the nasal cavities insures a better and more satisfactory anesthesia, where it is followed by the local application of a stronger solution, and that this result can be obtained with a less amount of the drug. It should not be forgotten, however, that a special spray apparatus or tip should be

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used for cocain solutions. The Davidson sprays so commonly used throw too coarse a spray, and in the absence of any control of the compressed air supply the spray is distributed too freely and that beyond the nasal cavities into the post-nasal space, which is not only unnecessary and undesirable, but quite discomforting to the patient. After the "preliminary spray" Dr. A. uses a 25 per cent. solution "by rubbing the probe, on which is arranged a small amount of cotton, back and forth gently, but continuously, allowing the cocainized cotton to reach every desired part of the membrane," intimating in the same paragraph that "anesthesia will take place in from three to five minutes."

Many of us who have had some experience of a not very pleasant kind, even from the use of solutions much weaker than a 25 per cent. solution, would not be so likely to follow Dr. A.'s "method," but "there are others" who would be specialists, that might realize the danger too late, especially in the case of an individual with a peculiar idiosyncracy. Therefore I must warn such against so free a use of so strong a solution of cocain in the nasal cavities.

In summing up the advantages of his method Dr. A. claims a saving of time, "not requiring more than three to five minutes, while the tampon method is fifteen to thirty minutes." The latter statement is contrary to the experience of most nose and throat specialists. Although time and space will not permit me to either defend or condemn the so-called "tampon method," suffice it to say that when correctly used (*i.e.*, by placing in contact with the mucosa a thin layer of cotton fibers moistened with a 5 per cent. solution of cocain covering a little more than the operative area, thereby limiting absorption and controlling toxic effects) is all sufficient for cautery and the various intra-nasal operative procedures. Dr. A. asserts that by his method a small amount of cocain is used, yet it is to be supposed that the rubbing of the probe charged with cocainized cotton back and forth continuously for from three to five minutes would permit the absorption of a sufficient quantity of the drug to produce decided toxic effect in persons only moderately susceptible to it.

He also asserts that the equal distribution is more desirable than the localized effect, for cautery, etc., which is true only in part, as explained in the first part of this communication. He furthermore asserts that "the admixture with mucus does not dilute nor lessen the anesthetic effect." Granting this latter statement to be true, the argument would be in favor of the method he incorrectly calls the "tampon method."

The suggestion of Dr. A. "to arrange the patient in the prone position, as for general anesthesia," is entirely gratuitous, since it is neither necessary nor convenient, in view of the difficulty to obtain hemostasis in operative procedures within the nasal cavities. It is a fact that the free hemorrhage so usual in intra-nasal operations makes the upright position imperative.

In conclusion, I would reiterate the statement that a 5 per cent. solution of cocain will be found all sufficient to secure the desired anesthesia of the nasal mucosa. In endolaryngeal operations, however, and in the post-nasal vault the careful use of a 10 per cent. solution is more satisfactory. I consider a 25 per cent. solution either in the nose or larynx to be recommended in exceptional cases only.

126 State Street.

A CASE OF BENIGN CICATRICIAL STRICTURE OF THE ILEUM.

OPERATION, LATERAL ANASTOMOSIS, EXHIBITION OF SPECIMEN REMOVED FIVE YEARS AFTER.

Read at the meeting of the Chicago Pathological Society, April 12, 1897.

BY M. L. HARRIS, M.D.
Professor of Surgery, Chicago Polielinic.

The patient from whom this specimen was obtained presented the following history: Mr. C., age 57, American, married. Family history good. His health previous to the present trouble had been good. I could obtain no history of a former intestinal trouble such as dysentery, severe diarrhea, typhoid fever or any illness likely to have been attended by the formation of an ulcer or ulcers in the intestinal tract. He could date his present trouble back about three years. It began very gradually with symptoms of indigestion or dyspepsia, and for a long time was supposed to be due to his drinking habit, as he was a man who indulged rather freely in intoxicants. The symptoms, however, continued to increase in severity, unrelieved by medication. The bowels became constipated, with periodic attacks of diarrhea. His appetite failed and he wasted greatly in strength and flesh.

When seen by me Dec. 10, 1891, he was in an extremely miserable condition. He had wasted to a mere skeleton, weighing but 85 pounds. He was unable to retain nourishment, as he vomited everything put into the stomach. The ejecta were very offensive and semi-fecal in odor. Nothing had passed the bowels for several days.

An examination of the abdomen showed it to be somewhat distended. Large coils of small intestine were distinctly outlined through the abdominal wall and the peristaltic contraction was plainly visible. During these peristaltic waves, which were intermittent, the patient would experience severe griping pains. I have never seen coils of intestine so distinctly outlined and the peristaltic wave so plainly visible as in this case. Upon palpation an indistinct sense of resistance could be felt deep in the lower part of the abdomen, a little to the right of the mid-line. With the finger in the rectum this was more distinct, yet a tumor could nowhere be defined. The urine was normal except for the presence of a large amount of indican.

A diagnosis of chronic intestinal obstruction was easily made. Its location in the lower portion of the small intestine seemed likewise quite clear. Whether malignant or benign, however, was not so easily determined. His age and great emaciation spoke for malignancy. The length of time, fully three years, during which distinct symptoms had been present, the rarity of carcinoma in the small intestine and the absence of a tumor in an emaciated abdomen easily palpable, spoke more in favor of a benign stricture.

With this in view I determined to operate at once and form an anastomosis around the obstruction. The operation was performed Dec. 11, 1891. Upon opening the abdomen, the seat of obstruction was fortunately quickly reached and the loop drawn out. A linear mass of cicatricial tissue about 1.5 cm. in width, apparently involving most of the thickness of the gut wall, encircled the intestine, and by its contraction had almost completely obliterated the lumen of the canal. It did not extend at all on to the mesentery, which was perfectly free. It was evidently a simple, benign cicatricial stricture, and was located in the

lower part of the ileum. The intestine below the stricture was very small, flat and empty, while above it was remarkably dilated, looking like a distended colon, its wall, from hypertrophy, being as thick as that of the stomach. A lateral anastomosis was made between the loop above and the one below the stricture, about 30 cm. being excluded from the intestinal current. Senn's large size decalcified bone plates were used in the operation. The recovery from the operation was rapid and without incident. He regained his health at once and made the most remarkable gain in weight, from 85 to 190 pounds in eleven months.

He continued in good health for about four years, when the effects of chronic renal and cardiac disease, aggravated or perhaps superinduced by his habits, began to show themselves, and from this time on the usual course of these diseases was passed through—general anasarca, ascites with repeated tappings, etc., and finally death in December, 1896, exactly five years after the operation. At no time was there any trouble with his intestinal tract after the operation. The specimen still shows the thick cicatricial mass forming the stricture and allowing but a small probe to pass.

The loop of intestine which was excluded has shrunken or atrophied to but a few cm. in length. The anastomotic opening is of good size, having contracted but little, and permits a free unobstructed passage of the intestinal contents. The great dilatation of the bowel above the stricture has all disappeared, the gut being now of uniform size. This is, so far as I am aware, the oldest specimen—five years—of a lateral anastomosis on record.

The cause of the stricture was in all probability cicatricial contraction following an intestinal ulcer, but the history of the patient gave no clue to the primary trouble, and no examination of the body or intestines was permitted after death.

A CASE OF DEFECT IN THE VENTRICULAR SEPTUM AND STENOSIS OF THE PULMONARY CONUS IN A MAN THIRTY-TWO YEARS OLD, WITH DEMONSTRATION OF THE HEART.

Read at the Meeting of the Chicago Pathological Society, April 12, 1897.

BY JOSEPHINE E. YOUNG, M.D.
CHICAGO, ILL.

October 2, 1896, a patient, 32 years of age, entered Cook County hospital, Chicago, with evidences of an acute, febrile disease. He gave the following history: When 2 years old a consultation of physicians was held—the child always having been so delicate that it was necessary to carry him about on a pillow, at that time being very poorly nourished and developed, unable to walk, and having at frequent intervals attacks of marked cyanosis. The consultants told his mother that he could not live to maturity. At the age of 17, Prof. Lyman of Rush Medical College demonstrated the case in his clinic as one of cardiac disease. During his entire life, upon marked exertion or excitement, the patient had attacks of pronounced cyanosis.

Upon entrance to the hospital, physical examination revealed the following: General development and nourishment good, clubbed finger ends, color ruddy, no evidence of cyanosis at this time. The pulse was full and regular, later becoming irregular and distinctly subingual. *Heart:* percussion, relative dulness *right border* to the right of the right sternal line, *base* third rib, *left border* left mammillary line. There was increased dulness when the patient leaned forward. One month later the dulness extended two cm. to the left of the left mammillary line. Palpation: upon entrance there was distinct fremitus over the entire precordia. The apex beat was strong and regular. One month later there was marked arrhythmia. Auscultation: a very loud systolic murmur could be heard over the entire thorax, anteriorly and posteriorly, the maximum intensity being at the junction of the third rib with the left border of the sternum. The murmur was heard very distinctly along the entire left sternal border. There was no accentuation of the second pulmonic tone. Notwithstanding the fact that for eighteen days the temperature remained at or near 103; there was never any cyanosis. The urine was negative, both as to albumin and morphologic elements. Other findings bear no especial relation to the cardiac lesions, the diagnosis of the acute disease halting between acute endocarditis and typhoid fever. Dr. James B. Herrick at this time made a diagnosis of congenital heart disease.

The patient was discharged Nov. 24, 1896, after recovery from the acute attack. Dec. 12, 1896, he reëntered the hospital with facial erysipelas.

The heart and lung findings were as before. In a few days, with a temperature of 104 degrees, cyanosis became a marked feature. The heart was very arrhythmic, the pulse correspondingly irregular and compressible. The spleen extended five cm. below the left costal arch, the liver one and one-half cm. below the right costal arch and in the mammillary line. Examination of the urine showed albumin in rather large amount and granular casts. The extremities were not edematous. Two days before death the dyspnea was extreme and respirations increased to fifty-two. The patient's critical condition and constant right decubitus prevented a thorough examination of the right lung, which later showed evidences of pneumonia. He was rational throughout.

Death occurred Jan. 12, 1897, after one month's illness, during which time the temperature was frequently 104 and 105 degrees.

The clinical diagnosis was facial erysipelas, acute splenitis, nephritis, pneumonia (?), general septic infection, and congenital heart disease. The autopsy was mrde by Dr. Ludwig Hektoen, Jan. 18, 1897.

Anatomic diagnosis: healed facial erysipelas, lobar pneumonia, embolic abscess in the left lung, acute splenic tumor, chronic and acute nephritis, chronic gastritis, pigmented Peyer's patches, hypertrophy of the heart, chronic and acute endocarditis of the tricuspid and pulmonary valves and the wall of the right ventricle, stenosis of the pulmonary conus and congenital defect of the ventricular septum.

The bacteriologic examination of the organs showed staphylococci pyogenes albus and citreus to be present everywhere.

The cardiac findings more particularly are the following: The hypertrophy is rather marked; the heart weighs 400 grams; the apex is composed equally of the right and left ventricles; the wall of the right auricle measures 4 mm. in the thickest part, that of the left auricle 3 mm.; the wall of the right ventricle averages 1 cm. in thickness, that of the left ven-

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tricle 1½ cm.; the circumference of the aorta at the valvus is 5.7 cm., that of the pulmonary artery is 5.4 c.m.; the ductus Botalli is closed; the arrangement of the pulmonary artery is normal, that of the aorta, which communicates only with the left ventricle, is normal also. Four cm. below the upper margin of the pulmonic semi-lunar valves there is a stenosis of the pulmonary conus, due to fibrous tissue. The lumen of the conus measures 1 cm. in its largest diameter; the foramen ovale is patent, admitting a lead pencil through its orifice; a sickle-shaped valve covers it. Directly below the semi-lunar valves of the aorta there is a defect in the ventricular septum which measures 2.6 cm. in the horizontal diameter, 2 cm. in the vertical diameter. This defect corresponds to the septum membranacum, or undefended space, the last part of the ventricular septum to close, composed normally of a thin layer of fibrous tissue covered with endothelium. The pulmonary valves are thickened; the free margins of the posterior segment are covered by large polypoid vegetations. These spring also from the ventricular surfaces of the valves and from the wall of the pulmonary artery. The free margins of the tricuspid valves are thickened. Here then are distinct polypoid vegetations. The orifice admits four finger-tips easily; the right auricular appendix shows some irregular masses; the aorta valves are free from thickening; the aorta shows no atheroma; the mitral valve is normal, admitting four finger-tips snugly; the myocardium, except at the stenosis of the conus, is normal. Microscopically, the striæ and nuclei of the fibers are normal, but there is a general segmentation.

The clinical diagnosis of congenital heart disease was based upon the history, the cyanosis, hypertrophy of the right heart, position of the systolic murmur and thrill at the junction of the left third rib with the sternum, the intensity and widespread transmission of the thrill and the weak second pulmonic tone.

As to the formation of the lesions, Fraentzel, Bamberger and Oppolzer support the Hunter-Morgagni theory, a myo- or endo-carditis occurring before the eighth week of fetal life is the cause of the stenosis of the pulmonary artery or its conus. This greatly increases blood pressure by preventing the proper escape of the blood from the right ventricle, the blood necessarily forcing its way into the left ventricle through the undeveloped septum. If the opening in the septum is sufficiently large blood pressure in the right heart is compensated for—there may be no opening (in the septum) of the foramen ovale. If not large enough there will be hypertrophy and dilatation of the right ventricle, stasis in the right auricle, with passage of blood through the foramen ovale, which remains patent.

The case is of interest not so much from its rarity as from the following points: The patient had reached the age of 32, was a strong, well-developed man doing the ordinarily heavy work of a laborer, had passed through an acute febrile attack of eighteen days' duration without any evidence of cyanosis, had resisted for a month profound erysipelatous and septic infection and had entirely escaped pulmonary tuberculosis, a condition frequent in these cases, owing to the diminished supply of blood sent to the lungs.

A Progressive Potentate.—The young Emperor of China, with a lost faith in the traditional remedies of his people, has dispatched to the medical centers of Europe a large number of students. London, Paris, Berlin and Vienna have already received a respectable installment.

ADAPTATION AND INSERTION OF AN ARTIFICIAL EYE; ENUCLEATION, SYMPATHETIC PHENOMENA, ETC.

BY WILLIAM B. MEANY, M.D.
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SAINT LOUIS, MO.

The exercise of a little care with "troublesome" cases in the taking of a caste—either with dentist wax or with superfine dental plaster-of-paris—of the tissue walls of the orbital cavity resulting from the removal of an eyeball, and the artificial eye to be inserted fashioned on the lines of the "model," may overcome the difficulties complained of by advocates of dangerous substitute proceedings for the benign operation of enucleation.

An artificial eye should be fabricated to meet the requirements of the anatomic conformation of the orbital cavity, rather than the adaptation of the tissue walls to a misfit or bespoke eye—which has never been known to vary from its present shape for half a century or thereabouts.

By the adoption of this plan of procedure hazardous and unwarrantable "operations" that permit the retention of a portion of the structure of an eyeball that has become or is liable to take on disease at any moment, and thereby incite sympathetic phenomena, will be avoided; and the present unsatisfactory process of "grinding down" of the shop (stock) eye be dispensed with.

The insertion of an artificial eye is very simple and is soon learned by the patient. It must first be steadily pushed beneath the upper eyelid and held there while the lower lid is brought around its lower edges.

Its removal is readily facilitated by depressing the lower lid so as to expose the lower edge of the artificial eye, when it usually slips out by its own weight, and should be caught in a handkerchief or permitted to drop out upon a bed. An artificial eye should not be adapted or inserted until the cicatrix of the conjunctiva and other tissues of the orbit become firm, quiet and free from ulceration or inflammatory discharges. By selecting an artificial eye somewhat smaller than the remaining or sound eye, the distorted or over-exaggerated appearance is avoided. The eye should not be worn continuously—that is, never during bedtime.

ENUCLEATION.

This operation or excision of the eyeball is usually performed as follows: A fold of the conjunctiva on the inner or nasal side of the eye having been seized with the forceps is divided with a scissors at the corneo-scleral juncture along its entire circumference. The tendons of the muscles caught up with a strabismus hook and divided, the globe turned firmly outward and forward; the scissors (those curved on the flat being used), introduced either on the nasal or temporal side of the eye as the operator may elect, the blades of the scissor being separated so as to straddle the optic nerve, permitting of easy division. Care should be taken to excise the nerve some distance from its ocular attachment.

The globe being brought out of the orbit, the oblique nerves and vessels are divided. The cavity is then carefully syringed with a cold boric acid or a 1 to 10,000 sublimate lotion, or both; the slight hemorrhage that follows the operation is usually arrested by the "syringing" of the cold antiseptic solutions.

A suture uniting the superior and inferior margins of the conjunctiva introduced; a rondelle of antiseptic cotton wool previously moistened with distilled water is inserted between the lids and a compressive bandage applied, and permitted to remain for twenty-four or thirty-six hours.

The stitches uniting the superior and inferior margins of the conjunctiva are generally removed on the second day following the enucleation.

The following operation has been suggested a decade or more ago and appears to possess the important advantages derived from the operation of enucleation with none of the disadvantages of that of evisceration, as proposed by Mr. Mules, or other "operations" that do not materially differ from evisceration other than as to the method in removing a little more or less of nerve tissue, and the dangers arising from sympathetic trouble being almost *nil* when compared to the so-called surgical interferences that permit the retension of a portion of the structures of a globe that has already become or is liable to take on disease at any moment.

The operation is similar or in fact is practically identical with that of enucleation with the addition of a sterilized hollow glass sphere (to avoid the dangers of a sphere becoming fractured one made of silver or aluminum has been suggested as a likely substitute) is inserted into the cavity of Tenon's capsule and the conjunctiva stitched firmly over it; a temporary catgut drain will have to be used in conjunction with the operation.

When the eyeball is entirely removed as in this operation there is no likelihood of disease being propagated and thereby displacing the questionable practice commended by a writer in an article of a late date, of the "ingrafting" into the tissues of the orbital cavity portions of so dangerous a substance as the "deadly" sepsis-generating sponge, to act as a "support" for an artificial eye.

Advocates of "substitutes" for enucleation who, for reasons of their own, appear unable to obtain a proper support for an artificial eye following their enucleations, will find a useful and movable support, as the muscles of the eyeball are attached upon the sphere inclosed within it; as Tenon's capsule is attached to the conjunctiva in front, when this is sutured the capsule is rendered tense and becomes accurately adapted to the selected sphere. This operation, however presents some disadvantages.

The operation of enucleation is wonderfully benign and if carefully performed does not in the least interfere with the adjustment of an artificial eye, whose motility will be as perfect as if resting upon a shrunken globe, besides being free from the dangers of a shrunken remnant of a lost eye, acting in the same prejudicial manner as an injured or diseased eye before having parted with its contents or a portion of its structures. A most happy effect is gained by enucleation, in arresting and subduing the *irritation* which threatens to develop into *destructive* inflammation of the sound eye.

Enucleation at an early stage should be insisted upon where eyes have been crushed by blows, that are the *site* of neoplastic growths that may prove malignant; eyes that have been penetrated by foreign bodies which are not removable, which belong to patients who can not be trusted to take either proper care of themselves or to return if they are threatened with sympathetic *irritation*.

When the exciting eye is evidently rendered useless by the wound or from consequent inflammation, that is when its vision amounts to perception of light, and when there is no probability that sight will improve without incurring the risks of the sympathizing eye, the exciting eye should immediately be excised. If the sympathizing eye is only suffering from *irritation* and presents no symptoms of *inflammation* the removal of the exciting eye will be followed by immediate relief of the irritation and no symptoms of inflammation are likely to appear; hence the necessity of an early enucleation of useless eyeballs from persons in whom one sound eye remains as a prophylatic measure. Advocates of such "operations" as abscission, neurotomy, optico-ciliary neurotomy, exenteration or substitutes of a like character that permit the retension of a portion of a diseased globe, can hardly advance any claim to merit, save to afford *only* temporary relief from sensitive and painful eyeballs without offering the least safeguard to the prevention of sympathetic phenomena or destructive inflammation of the sound or remaining eye.

The operation of enucleation should alone be practiced, and the "substitute" procedures adopted and advocated every now and then by some youthful or experimental surgeon, inhibited by law.

3907 West Belle Place.

A NEW SPLINT FOR NASAL FRACTURES AND DEFORMITIES.

Read at the Third Annual Meeting of the American Academy of Railway Surgeons, held at Chicago, Sept. 23, 24 and 25, 1896.

BY JESSE HAWES, M. D.,

DIVISION SURGEON ON THE UNION PACIFIC, DENVER AND GULF RAILWAY, GREELEY, COLO.

This splint is intended for cases of nasal fracture in which there is a drawing upward of the point of the nose or of the alæ. Permit me to describe it by the narration of a case in which necessity demanded it

C. W., boy aged 10 years, was brought to me, having been kicked by a horse several days before. The toe of the animal struck the nasal septum at its junction with the upper lip. The blow cut the septum loose from the lip. A wound extended through the septum from the point of union with the lip directly upward for three-fourths of an inch.

The detached edge of the septum was rolled up into the nose; both alæ were forced upward; the nasal bones were detatched from the maxillary and driven upward, and small pieces of the maxillary were broken on each side of the nose. The contractions of the levators of the nose held the soft and hard tissues where they had been driven by the kick. The point of the nose was far above its normal position; the right ala was much higher than the left.

The first step toward repair must be to bring down and fasten the septum in its position, the next to replace the fractured bones, the last to bring down and retain in position the upturned nose. To fasten the septum by stitches was simple; the nasal bones were easily pressed into their normal position, but slipped outward as soon as manual pressure was removed. To bring down and *retain* the point of the nose in its proper place was impossible.

The best suggestion I could get from "the books" and experience was to draw the nose down by grasping its point, then to transfix the lower end of the

septum antero-posteriorly with a long, stout, steel needle, the point of which was driven down in the palatal process of the superior maxillary. (See illustrations in Roberts' Surgery.) While this partially held the point of the nose from being drawn upward, it did so very imperfectly; the upward dislocation of the alæ was corrected but very little. The quite recent editions of Bryant, Keene, Ashhurst, Stephen Smith, Wyeth, Roberts, Ashhurst's Cyclopedia, Hamilton's Fractures, Holmes, Gross and Stimson offered no helpful suggestion.

After several days of chagrin over my inability to control the deformity, the very simple nasal appliance which I here present suggested itself.

It consists of a piece of No. 15 spring brass wire of suitable length, bent first into the form of a rectangular letter U, the arms of which are about an inch apart and long enough to extend from the center of the upper lip to the crown of the head or beyond that point; opposite the supra-orbital ridge a sharp angle is formed; this angle is to permit the splint to enter the orbital cavity just beneath the orbital ridge; this angle is a means of fixation of the splint against the supra-orbital ridge and is one of the most essential features of the appliance. The lower end of the splint — i. e., the transverse portion — is carried forward, away from the lip, the distance of a half inch.

A continued narration of the case will best illustrate the application of the appliance: Having formed the wire splint to fit the head, forehead and nose of my patient it was applied to these parts; a folded piece of lintine was placed between the wire and the orbital ridge to prevent painful pressure at that point; the splint was held firmly in contact with the head with a broad strap of rubber adhesive plaster carried across the forehead and completely around the head.

The nasal bones, which could only be held in position by continuous pressure, were easily retained by pads of lintine placed between the splint and the side of the nose. A large, strong silk suture was carried through the septum near the point of the nose, the nose was pulled down by tying the ligature to the transverse wire beneath. The mucous membrane and cartilage (but not the skin) of each of the alæ were pierced by similar ligatures, and when drawn down to their proper positions the ligatures were fastened to the wire beneath.

The result in my case was eminently satisfactory though not perfection and was far better with this splint than it could have been by using any splint that has preceded it; indeed there *is* no appliance, so far as I can learn, that *can* perform the office of this.

I have recently added to the appliance a means of elevating depressed portions of the nose and permanently retaining them in position. It consists of a wire of spring brass, bent so as to elevate the depression to the normal position by pressing upward from the inside of the nose. The wire should be covered with soft-rubber tubing; the stiffness of the wire should ordinarily be less than that of the outside splint. Each intra-nasal wire can be firmly fixed to the lower angle of the splint by a simple mechanical arrangement. This permits the intra-nasal wire to be removed from the nose and from the splint when necessary to change its form or pressure. I have experimented with these intra-nasal attachments and believe that when properly fitted to the inner surface of the nose they will raise the depressed part and retain it in position more satisfactorily than any other device heretofore offered. The splints are manufactured by Chas. Truax & Co., 75 Wabash Avenue, Chicago.

Let me recapitulate the advantages of the appliance:

1. They are simple; the first described appliance can be made in a few minutes by any surgeon who has the wire and a pair of suitable forceps.

2. It is easily applied, remains permanently in position and permits the organ to be inspected during the progress of recovery.

3. It holds a compress firmly to the side of the nose when such are needed to correct deviations, an important matter in some cases.

4. It will draw down the point of the nose or the alæ and hold them firmly in their normal position. No other appliance for accomplishing this has heretofore been presented to our profession.

5. The intra-nasal wires, when used, remain where placed, a statement that is not true of the intra-nasal plugs ordinarily used, such as cloth-cotton, rubber tubes, etc.

6. I suggest the use of the intra-nasal splint in restoring the normal esthetic shape and overcoming the deformities of noses long previously fractured, after vicious adhesions and unions have been broken up.

DISCUSSION.

Dr. E. M. DOOLEY, Buffalo—I think, as I have served as a lay figure for the demonstration of this apparatus, it is my privilege to speak on this subject, and I would like to state for the benefit of those who have had no experience with the splint, that my experience was extremely pleasant; in other words, it was quite comfortable as long as I had it on—but whether the inside is as comfortable or not I have my doubts. But I think from my experience with broken noses, and owing to the locality in which I live I have had a great deal of experience with broken noses, and I have often been at a loss to have a splint that would do in any and all cases, and I feel very thankful to Dr. Hawes for exhibiting this splint, and I shall use it in the next case where I think it will be of service.

Dr. KIBLER, Cory, Pa.—Just one matter that occurred to me in connection with the splint, and that is—I am glad that Dr. Dooley testifies to the fact that the splint is a good one—could that part that enters the nose be made of hard rubber? It could be made more thoroughly aseptic and I believe give less danger to the mucous surfaces than you could have from the brass wire.

Dr. HAWES—It probably slipped your attention that that is covered with a soft rubber catheter.

Dr. LEMEN, Denver—As this originated in my neighborhood, Dr. Hawes being a neighbor of mine, and I was being occasionally asked to treat broken noses, he insisted that I use it, and I have used it in a number of cases and am very much pleased with its application; it holds the position of the bones per-

fectly. If the surgeon's apposition is properly attended to, the same is continued by the application of the splint.

Dr. COLE, Helena—It strikes me as being an extremely ingenious device. In the entire field of accidental surgery in minor matters there is nothing more troublesome, perhaps, than fracture of the nose with displacement, and to get a satisfactory result is sometimes exceedingly difficult, and if I understand rightly the application of this apparatus it should be a practical part of every surgeon's paraphernalia.

Dr. W. J. MAYO, Rochester, Minn.—I was very much interested in the splint of the Doctor, the external part I have never seen used in this connection. My brother, Dr. C. H. Mayo, has used a somewhat similar intra nasal splint in the elevation of depressed nasal fractures, and also a method of his own for the relief of sunken nose caused either by fracture or specific disease. In sunken nose he cuts obliquely through the septum and the depressed tissues behind and inside of the nose with a heavy chisel or cartilage knife, and elevating the septum introduces the splint, which allows sound union at a high level. In these cases the results have been excellent and continued so. The bevel of the cut surface enables the sliding upward of the depressed portion. The splint used by him consists of a similar piece of brass wire bent by a single turn into a coil, the two projecting ends being introduced into the nostrils, one along the floor, the other sprung up beneath the depression; the tension of the spring thus formed gives the necessary upward curve, one splint thus constructed and covered with iodoform gauze being introduced into each side and left for a number of days.

Dr. BRYANT, Omaha—I think this invention of Dr. Hawes for holding down the nose after an injury, not only the best splint I have seen, but the only one. I have never seen one for this particular purpose. The difficulty in a majority of the cases where injury to the nose has been received, is not to hold the nose down, but to raise it up—probably 90 per cent. or more would have a depressed nose, instead of an elevated nose; but this seems to be an all-round splint, not only to hold it down but to elevate it. If I were to criticise this I think it would be in the portion that enters the nostril, and that criticism is not anything of value, it simply would be this: In many cases, make it larger in order to keep it in, and that could be done by winding the copper with thread or string and then using soft rubber over that. I believe soft rubber is the best thing to prevent irritation of the mucous membrane, and I think this [indicating] might be uncomfortable after using it any length of time—that is, I think it would.

Dr. HAWES—In making some remarks upon the comments that have been made I come first to the comment that the inside appliance is uncomfortable. Any man that has ever had any experience knows that nothing is very comfortable in the nose; whenever you push up there a lot of cotton or cloth it is uncomfortable—but that has hardly ever been an objection during the years it has been practiced; it would be customary to use a wad of cotton, which is a thousand times more uncomfortable than the other, which is much more efficient. One of the other criticisms was on account of using a hard brass substance that was liable to corrode. That I reply to with the statement that in the paper it was stated it should be covered with a soft rubber catheter. I want to call attention to another fact, that I have presented to you two splints, the second is an outgrowth of the first; the second can be used for all purposes that the first was used for, the first can not be used for the purpose for which the second is. The first is intended to draw down the nose when it has been drawn upward; the second is intended to raise the nose from the inside, which is wholly outside of the field intended as the proper field of the first. Dr. Mayo speaks of a method which I was not aware of; I have never seen it mentioned in the books. It is very evidently an excellent method of raising these depressed noses. This one of mine, while I have never had an opportunity to raise depressed noses, I have no doubt will do exactly what the other one does. The person who is using the splint should have some knowledge of the anatomic form of the inside of the nose, and should then bend his wires so that they should fit that form in particular, and raise the nose to its normal and esthetic position. The comment of Dr. Bryant that it should be larger can be very easily attained by using a larger catheter instead of the little catheter—I peeled off and threw away the rubber that I had on the outside when I began to talk, to show you the wire. By using the larger catheter you can adapt it on the inside to a nose of any size that you desire. Another of our members inquires, Where can I get these splints? I have stated in the paper that all you have to do is to get a piece of wire and a pair of pincers. If you want something better you might go down to any of the instrument makers, or even to the common tinsmith, and by giving your ideas, you might get it made in a very few minutes—if you go to the instrument maker it will cost you a dollar and a half; if you go to the tinsmith it will cost you ten cents. That is all.

THE PRESIDENT—Can the surgeon readily make that second splint?

Dr. HAWES—I made one; I am not a tinker or son of a tinker, but I made one in a bungling sort of way. This I took to the tinker and asked him to make it, and he made it rather better, shapelier far than I can; you would have to take that second one to the tinker or tinsmith or instrument maker. I do not think it is wholly perfect, but that it is an embryo of a valuable instrument, a valuable appliance.

Dr. REINEKING, Sheboygan, Wis.—I would like to make a suggestion in regard to the enlargement of the intranasal portion. I think that can be done and made comfortable by winding around absorbent cotton and dipping that in melted parafin which can be impregnated with an antiseptic solution; a backing of cotton cloth can be built up on the intranasal splint; the parafin is hard enough to make sufficient pressure.

Dr. HARNDEN, Waverly, N.Y.—I think it would be in order that a vote of thanks of this Academy be extended to the Doctor for bringing to our attention the valuable instrument.

Motion seconded and unanimously carried.

REMARKS ON THE TREATMENT OF FRACTURES.

Made at the Third Annual Meeting of the American Academy of Railway Surgeons, held at Chicago, Ill., Sept. 23, 24, 25, 1896.

BY R. ORTEGA, M.D.

CHIEF SURGEON TO THE MEXICAN INTERNATIONAL RAILWAY.

CIUDAD PORFIRIO DIAZ, MEXICO.

I want to talk about a treatment or practice which gives the patient entire relief at once from pain and puts him in good condition for work as soon as the fracture is solid. As soon as a patient breaks a bone I make massage from the lower part of the fractured limb to the upper part; we commence to do the massage very gently just on the skin, with anything, oil, or soap and water, salve or vaselin to allow the hand to rub without hurting. Ten or fifteen minutes afterward we do the massage on the muscles, always from the end of the member up, never making pressure; in ten or fifteen minutes after the pain is gone and we can reduce the fracture without chloroform or pain. As soon as the fracture is reduced we roll it in a simple flannel bandage, from the end of the member upward; if it is in the arm we put the arm in a simple handkerchief from the neck; if it is in the upper arm, the weight of the arm is enough to keep the fracture in good position. And the next day we do the same treatment, a little massage and a little movement in all the joints of the broken limb. I have done this treatment for a year. I have had but few cases as my practice is very small. One boy about 18 years old, had a wheel from which he fell and broke his right arm in the middle with a compound fracture, the upper end of the humerus projecting through the skin. Dr. Lord reduced this fracture, put on a good dressing and an apparatus, and he called the next day to see the patient; the patient wanted to cross the river. I saw the boy with Dr. Lord; we took off the apparatus, the wound was in good condition, aseptic because the doctor had put a very nice and good dressing on. I told him I was going to take off the apparatus as soon as I brought the boy over the river. I did so and then applied a bandage, and made motion in the elbow and other joints and in fifteen days this boy was at work as before the injury. There was a compound fracture of the humerus and simple fracture of the ulna, and in fifteen days later the boy recovered and worked as before, all the bones completely healed. I had one day two cases; one a small

boy about 6 years old, broke the humerus of the right arm, not a compound fracture; I applied massage at once, and in ten days this little boy climbed trees and did almost everything. The same day in the shop, a workman broke his humerus in the middle, and the fracture was displaced. I did massage and put the fracture in position and rolled it in a bandage, and I left this arm without an operation; I did massage every day and about 20 days afterward this patient was in good condition. I do not remember the details of other cases, but I want to call your attention to this treatment. It gives a little more trouble to the doctor but that does not count; the patient does not suffer and is able to work very soon. My company does not give wages to people when they are sick and I think this treatment is very good because it does not keep patients two or three months without working; they can go to work in 15 or 20 days.

SURGERY ONE HUNDRED YEARS AGO.

AN HISTORICAL STUDY

BY DR. GEORGE FISCHER.

DEDICATED TO THE GERMAN SURGICAL ASSOCIATION.

TRANSLATED FOR THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION BY CARL H. VON KLEIN, A.M., M.D.

VIII.—PROFESSORS OF SURGERY AND PRACTICAL SURGEONS (WUNDAERZTE).

(*Continued from page 29.*)

In October, 1765, two Germans traveling for study reached Leyden together. With the greatest kindness, their celebrated countryman, Albinus (born in Frankfort on the Oder), whose anatomic works and drawings surpassed anything which had hitherto been done in descriptive anatomy, opened to them his invaluable storehouse of specimens. The two young men, who here formed a bond of friendship which lasted through their whole lives, became later the best teachers of surgery, A. G. Richter and *Carl Caspar von Siebold*. The latter, who was six years the elder, was born (1736-1807) in the little town of Nidecken, where his father was a surgeon, and at the age of 16 he entered the school in Cologne, in order to study philosophy. There he made such good progress that he was enabled to take part in public disputations. In 1755 he returned to his father, who gave him instruction in surgery. When the "Seven Years' War" broke out Caspar entered the French army, which marched against the Hanoverians in Jülich. For three years he remained in the French field hospitals, where he had opportunities to perform operations. While in winter quarters he attended the lectures which were given by some French surgeons, according to official requirement. In 1760 he was stationed in Würzburg, became acquainted with the professors there, gave up his appointment and became assistant to Stang (later his father-in-law), who had been chief surgeon in Julius Hospital since 1731. Here he also attended theoretic and practical lectures for three years and then took his doctor's examination. The conferring of the degree was postponed, as the bishop-prince gave him money out of the university funds to enable him to travel. Siebold went to Paris (1763), remained there eighteen months, attaching himself chiefly to Morand, in the Invaliden Hôtel. He heard Sabatier, de la Faye, Bordenave, A. Petit and Levret, industriously practiced lithotomy on cadavers under Moreau, and visited the Hôtel Dieu. In 1765 he visited Le Cat in Rouen, and resided with him a long time in order to learn better methods in lithotomy. Then he went to London. There W. Hunter, Pringle and the operations of Pott, Bromfield and Hawkins engaged his attention for three months. From there he went to Leyden and visited Albin and Gaub. In 1766 he turned back to Würzburg, where three years later he received his degree. He assisted the professor of anatomy, surgery and obstetrics, Hüber, and the chief surgeon Stang, who now retired. After their death he filled the two offices of city and country obstetrician (1779). He refused a call to Berlin as professor of surgery, and surgeon in the Charité. The battle of Würzburg, in which Archduke Charles forced the retreat of the French, brought many wounded Austrians into Julius Hospital, and these were cared for by Siebold and his sons. As a recognition of his untiring activity, Emperor Francis II raised him and his descendants to the nobility of the Holy Roman Empire (1801). Soon after the bishop-prince advanced him from private-surgeon to private-physician, and the court-councillor promoted him from professor to privy-councillor. Siebold's activity in the various faculties was very extensive, yet he managed affairs with great energy. In the winter he lectured on anatomy, conducted the experiments in preparations, at first without a prosector by his side, lectured on operations and gave a course in operations. In the summer he lectured on bones and bandages. After New Year's he gave instruction to the midwives and frequently gave private lectures on the theory of obstetrics and diseases of the eye. He was also engaged in making a collection of surgical specimens and conducted the surgical clinic in Julius Hospital every day. For his relief he gave up obstetrics (1790) and had his son, J. Barthel, appointed extraordinary professor of anatomy and surgery (1797), who had had the special instruction of treating the patients in Julius Hospital with his father. When, in 1802, the government of the bishop-prince was abolished and the Bavarian kingdom set up in its place, a reorganization of the university, henceforward called Julius-Maximilian University, was effected, and the chair of anatomy was separated from that of surgery. Carl Caspar and J. Barthel were appointed professors of surgery, and the former acted as director of the anatomico-surgical institute.

With C. C. von Siebold there began for Würzburg a new and brilliant epoch, such as the university had never before experienced, insomuch that at the end of the century Würzburg was considered one of the first universities in Catholic Germany. Aside from the successes which Siebold achieved in behalf of his little fatherland through the founding of the surgical clinic, the improvement of obstetrics, through his active part in the organization of Julius-Maximilian University, and through the elevation of the surgical profession in the eyes of physicians and of the public, it was especially upon his eminent qualities as a teacher that his reputation in Germany rested. After Göttingen came Würzburg, which had the advantage of possessing over the first mentioned and over other universities, a very large and beautiful hospital—the principal school for surgeons. Siebold attracted a great number of students, among them many foreigners, and he distinguished himself before his colleagues through the fact that he trained up a large number of academic teachers from his body of assistants. Among these, besides his sons, were Professors Weidmann and Fibig in Mainz, Rösch in

Bamberg, Brünninghausen and Hesselbach in Würzburg, Markard, Adelmann and others. Many of his countrymen considered Siebold as one of the greatest surgeons of his time, and his copper-plate portrait bore the inscription "Chirurgus inter Germanos princeps." Sometimes the reputation of an eminent man is depreciated by envy, but in this case it was exaggerated by enthusiasm. Only the crucible of time brings out the true merits, and history has moderated that judgment. Doubtless Siebold was one of the best surgeons of his time, but he had no very great scientific importance; surgery was not advanced by him. He was a good operator and was honest enough to regret that he had never become skilled in cutting with his left hand, and he advised his pupils to early learn to cut and saw with the left hand, in the dissecting room. For the first time in Germany (1778) he performed the synchondrotomy with success, for which the *Académie de Chirurgie* in Paris made him one of its members. He also several times ventured upon the extirpation of the *scirrhous parotis*, yet he adhered to the principle of Celsus against too great a readiness to operate: Never lay a hand on one whom thou canst not save, then thou wilt not be thought the murderer of those whom thou couldst not save.

We can get a clearer picture of Siebold's intellectual bent if we allow him to speak for himself. After he had reviewed, in the preface to his surgical day-book, the difficulties with which he at first had to contend in Würzburg in order to elevate surgery and the profession of the surgeon, he says: "Often my labors were not entirely unrewarded, but I have found the greatest reward within myself, and in the abiding consciousness that I have neither utilized nor called forth all that might be achieved in the realm of the profession, in its extreme limits. . . . As chief surgeon of Julius Hospital I was in a position to practice the profession to my heart's desire, and to put its principles into the completest execution. I always consider the hours which I devote to visits in this place as the best and most pleasant of the whole day. . . . Almost from the first hour of the practice of my chosen profession I have taken the opportunity daily to write down faithfully and circumstantially all or nearly all the cases which have come before me, together with their progress and result, because I would be so completely absorbed in many cases that conversation with colleagues of sterling worth was impossible to me. Literary work was not at that time a part of my intentions, and indeed could hardly have been so, as I was expected to remedy ills with the knife and not with the pen. This note book I kept up every day, and I do not know whether one of my natural functions or the keeping of this so-called day-book is now the more natural to me. I noticed at the same time a subtle influence upon my own development, and encouraged my young colleagues to undertake a like system with their cases, for the sake of their own progress and for the refining of their powers of observation, which demand training just as much as any other of the faculties. . . . Many observations I turned to good account in disputations . . . but in the eyes of my friends I was no writer. At times I indulged in enthusiasm; I had illusions, and saw in the most vivid colors huge volumes before me, with which I should shine in the world of letters; many a time I wrote half the night (for the days left me no time). . . . Sometimes all desire for the life of a writer forsook me; at times the greatest indifference overcame me; such was my fate for twelve years, in which sometimes I would be a writer, again I would not. A few friends, indeed, addressed themselves to my conscience, and said that the "not yet writer" committed a sin of omission which I (they flattered me!) with my scholarly career took to heart. . . . My friends were not entirely wrong; I will resolve to seat myself and sharpen my pen for a literary life. I resolved, yet long remained undecided, for all kinds of difficulties confronted me; the greatest was my ever-increasing practice. Then I found that it is not so easy to establish one's self as a writer; it is one thing to settle a matter with the knife and quite another to do so with the pen. . . . I finally resolved to all earnestness. . . . In my fifty-fifth year I entered upon my literary career. But once more (rief ich ihm unter der Hausthüre), supposing the effort should not meet with applause or should fail. My friends vouchsafed me scarcely a glance, I was obliged to pluck him by the coat and extort an answer from him. 'How can you have any doubt of it?' said he, 'your business is truth, and it is the business of humanity.' . . . My readers will see that to me, or rather to my temperament, which I can not change, it is a hard matter to become an author, a career upon which many cheerfully venture before they know anything whereon they can write, and carry a pencil in their trousers pocket, and suppose themselves to be writers before they even have at hand material enough for a single letter. . . . I began to break off many pleasures, to sacrifice myself, and gradually to become accustomed to sitting, in the face of former habits of long duration. Now the time for action had come. . . . But from all this my readers will see that I was not born a writer. . . . I have often observed in young surgeons, and, if I may be permitted to say so, also in older ones, that the most ordinary things, or rather their proper handling, seemed the greatest rarity. Accordingly I consider the most valuable those of my notes of which the intelligent reader can make the most use. It is not my purpose to dispense so-called observationes rariores, yet I will let such go with the rest; let anyone use them who can. I have employed the chronological order, and a kind of disorderly order, which also appears in other writings of the kind which have passed unscathed through the hands of good critics. . . . I lead my friends through a blossoming meadow; let every one pluck and read and carry away what pleases him, and leave the tree and shrub standing; that which appears to him unfruitful perhaps he may take to his colleague. . . . Pardon me, worthy masters, that I can not appear in your uniform; I have the misfortune to be a man who finds himself continually on the road in behalf of his science and of mankind, and one who can not possibly find time to change his traveling clothes in order to present himself in a literary garb. . . . My intention is to use and not to publish. . . . Elegance of diction is no part of my business, and still less is literary adornment, yet I have not been careless in seeking for the greatest possible accuracy of expression. Should many an inaccuracy have crept in, I request that the honorable police court of the language, charged with the keeping of the purity of the German tongue, do not exceed the bounds of its jurisdiction, and for the sake of a small twig uproot the whole tree. What would be said of such a forester? . . . I believe I have observed a certain kind of punctuality in the

applying of the bandages and the use of the instrument, even in cases of minor surgery, so-called against my comprehension and wish, for I consider such just as little beneath the dignity of a surgeon as the greatest and most celebrated operation, because in all cases a man can be a great or a small surgeon. Truth, I repeat, is the stamp which I wish above everything to incorporate in my observations; I have accordingly not only related my successful cases, but even my mistakes, and have acknowledged myself as the author of a mistake when I either misunderstood the language of nature or anticipated it in too hasty a manner, and all with the best intentions! I have also striven, as appears to me to be the duty of an honorable man, to present all sides, even at the expense of my own vanity. . . . I make the honest confession to my readers that I have felt just as much delight when I could endorse an old method for the benefit of the profession as when I saw something new gained for it. I have, therefore, never affected a love for innovation. I have cheerfully been the last to take up a new theory, and have accordingly gained thereby. . . . . So I confess that in the confirmation of an old principle throughout a number of uniform experiences I count it as much to my credit as in the discovery of a new and unheard of case, which is often the result of accident, and in need of further confirmation. Yet my readers will find, least of all, that I condemn what is new, for I believe myself to have kept up with the spirit of the times. Only in difficult operations do I follow the old methods to which I have been most accustomed from the time of my first instruction. For instance, I have never attempted a lithotomy in any other way than according to the method of my teacher and guide, Le Cat. . . . I have preferred a safe cure, approved after long trial, to any unsafe attempt, even if its color of novelty was ever so alluring. . . . I will now see how it is to be an author. If I meet with misfortune my friends who persuaded me to this step will have to answer for it. Literary vanity and fondness for writing were never, I repeat, the happiness of my life. But if success comes, and this effort results prosperously, then a continuation will soon follow. . . . But nothing can come of it if my critics go too far."

A number of Latin dissertations preceded his masterwork, "The Surgical Daybook," (1792). In this there are a hundred case reports, which cover a period of one year, and are given in chronological order; brief, clear and sharply outlined pictures, unfortunately without the diagnosis in every case. They show an experienced practitioner, but very little science. Siebold wrote on lithotomy (1778), on the cutting of the os pubis (1778), castration (1802) and several lesser articles for academies and periodicals.

Carl Caspar was the father of an illustrious family in medicine. Four sons devoted themselves to it; the eldest, George Christopher (died 1798) received from his father the professorship of obstetrics in Würzburg; the second son, Damian, was a medical counsellor; the youngest, Adam Elias (died 1828), after his brother's death became professor of obstetrics and teacher of midwives. He founded the lying-in hospital in Würzburg and also in Berlin, whither he was called. The third son, *John Barthol von Siebold* (1774–1814) after his studies in Würzburg and Jena, became assistant to his father, as has been mentioned before. He gave anatomic demonstrations, lectured on osteology and bandaging, and in every semester taught theoretic surgery. He prided himself on being the first of the Würzburg professors to lecture on pathologic anatomy. He was appointed ordinary professor of surgery, and, upon the death of his father, took the position of chief-surgeon in Julius Hospital, The hospital fever, which during the war proved fatal to so many physicians (eighteen in the Grand-Duchy of Würzburg alone), caused his death. Barthol's scientific accomplishment, like that of his father, is of minor importance, yet he possessed a talent for teaching and skill in operating, kept a day-book, and published annual reviews in the *Würzburger Gelehrte Anzeigen*. Some of his notes were scattered through the dissertations of his pupils, and in different journals. He established (1805) a new periodical, the *Chiron*, and took charge of a collection of rare surgical observations.

At the same time, in Würzburg lived *H. J. Brünninghausen*, one of the best pupils of C. C. von Siebold and A. G. Richter. He was general staff-surgeon of Würzburg, professor and chief district-surgeon; he gained much credit for his treatment of fractures of the lower limbs (1789) and of the collar-bone (1791), invented a machine for club foot and an artificial foot for use after the amputation of the lower limb. The Würzburg collection was greatly enriched through him. At the same time Würzburg possessed *Friedrich C. Hesselbach* (1759–1816), an able demonstrator who turned his attention especially to surgical anatomy. Untiringly active in his lectures and in the conduct of pathologic dissections, he amplified the anatomic cabinet in such measure, that under his direction it came to possess 680 dried specimens, and 501 in alcohol. In consideration of this service, the faculty made him a Doctor. It is to him that we owe the first distinction between the two forms of ingainal rupture, which he accurately described together with thigh-rupture (1806), and a statement of the various positions of the Art. epigastrica in internal and external rupture (1815). He also distinguished the anterior inguinal ring from the posterior, and showed that both were ends of the inguinal canal. The value of these researches is only appreciated when one considers that in Heister's time, the difference between inguinal and crural rupture was not at all understood, and that even A. G. Richter had no conception of the anatomy of the inguinal canal.

Surgery in Berlin, in the second half of the century, was chiefly represented by the military physicians Bilguer, Schmucker, Theden and Mursinna, to whom, as the best physicians of their time, we will later devote a special chapter. *J. Frederick Henckel* (1712–1779) lived in Berlin, first as military, later as civil surgeon. Born in Prussian Holland, he studied surgery, first with his father, then with surgeons in Königsberg and Danzig. In 1731 he went to Berlin to visit the colleges and the Charité under Eller, when he engaged to serve three years in the Kleist Infantry Regiment, as company surgeon. He became surgeon to the Potsdam Grenadiers; then was advanced to pensionary surgeon, and in 1739, King Frederick William I sent him to Paris for two years, where he studied under le Dran, Ferrein, St. Yves, and became acquainted with La Peyronie, Petit and Winslow. As regimental surgeon of the prince's regiment he treated the king during his last illness, was with him at his death and present at the embalming. When Henckel returned from the first Silesian war, he held private lectures and demonstrations for stud-

ents in the Royal theater, and gave courses in bandaging, which subjected him to much ill will and envy. Senff and Neubauer were at the same time exposed to similar annoyance. Receiving his doctor's degree in Frankfort (1744) he entered the second Silesian war, took part in the battles of Striegau and Sorr, and then forsook the military service in order to devote himself to study. In 1750 he became a member of the Paris Académie de Chirurgie and was appointed professor of surgery and midwifery at the Collegium Chirurgicum and surgeon-in-chief in the Charité. Henckel was very industrious. He encouraged the publication of practical experiences, insisted upon autopsy, inspected surgical preparations himself, and showed so much enthusiasm that he offered from his own pocket, ten Friedrichs d'or to the scholar who should write the best chirurgia medica, Henckel himself being the judge. Unfortunately, he was hampered by the want of a good education, as is shown by his dispute with A. G. Richter, and his abuse of other critics. He opened his literary career with a collection of medical and surgical treatises (8 St. 1747–63). His most important work is, "Directions for better surgical bandaging" (with fourteen tables and 102 copper plates, 1756), which ran through many editions, and was indeed, for half a century, the most popular work of its kind in Germany, in so much that seventy-three years after its appearance, it was re-edited by Dieffenbach. Henckel decided, when the suggestion had been made to him after he had lectured on bandaging for twelve years, to re-edit Bass's work on bandaging. According to his own confession he essentially followed this, and indeed, like Heister, frequently copied it word for word. It is seldom that the development of a science can be followed so clearly as that of bandaging. Dieffenbach revised Henckel, Henckel based his work on Bass, and Bass on Verduc, who wrote in the year 1703, covering a period of twenty-six years. Henckel's works, indeed, suffered from a superfluity of obsolete bandages, but what he wrote was clear, brief and practical. His treatise on fractures and dislocations (1759) is worthless. His treatises on surgical operations (8 St. 1770–76) were cursory and without importance, written without order or consistency, and were completely exploded by Richter's critique. In his later medical and surgical sketches (two collections, 1769–72) there were good notes from the Charité and also in his last work, the medical and surgical notes (1779) which were for the most part read in the Royal Academy of Sciences and Fine Arts in Berlin. Henckel was also an active writer on obstetrics and was the first German to perform the Cæsarian section in the linea alba (1769), which operation was, moreover, successful.

Among other Berlin civil surgeons, Professor *A. Frederick Pallas* (1731–1812), son of Simon Pallas, made himself known through his "Surgery" (1764); for the most part he was faithful to the doctrines of his time, but was so superficial that, for example, he devoted only thirty pages, in the tenth part of his book, to the discussion of wounds. His colleague, *J. G. Zenker* (1759–1807), was professor of surgery in Collegium Medicum Chirurgicum and was famous as a good teacher and operator. He wrote little; his most important production dealt with the injection of equal parts of water and wine in cases of hydrocele (Theden's Neuen Bemerkungen," 3 Th., 1795).

Surgery was taught at the Universities of Jena and Halle by a very active man and industrious writer, *J. Christian von Loder* (1753–1832). Born in Riga, he studied in Göttingen and was there made doctor by his future father-in-law, A. G. Richter, as "a young scholar of no ordinary promise." In the following year (1778) he became ordinary professor of anatomy and surgery and director for the lying-in-hospital in Jena, where we have already had occasion to visit him in his medico-surgical institute. He taught here for twenty-five years. He gave up his position as body physician and privy councilor in Saxe-Weimar, and went to Halle (1803–1810) and from there to Moscow, as professor of anatomy and surgery, where he was ennobled. In the war of 1812 he conducted several large field hospitals built by him and took an active part in the establishment of the great military hospital at Moscow, of which he was for three years the head. In 1819 a new anatomic amphitheater was built there according to his plans. He died two years after the outbreak of Asiatic cholera in Moscow in the midst of his activity. Loder was more of an anatomist than a surgeon. As such he recognized, as did his father-in-law, that the true value of a surgeon lay, not alone in skill in operating, but above all in the knowedge of so-called medical surgery, by which a man learns to avoid operations. Among his works should be mentioned in this place his medico-surgical notes made in the hospital in Jena (I. 1794), in which he, among other things, appeared as a spirited champion of the Alanson method of amputation. Soon after Richter had called him to act as co-editor of the *Chirurgische Bibliothek* he began to publish (1797) his own journal of surgery, obstetrics and medical jurisprudence. The "Elements of Surgery" (1799), so popular at that time for use in lectures, must not be left unmentioned. An early death claimed a very hopeful student of Loder, namely *J. F. H. Köhler*. He had accompanied his teacher in scientific journeys through France, England and Holland, and was assistant superintendent of the lying-in house and the hospital in Jena. When he died, in his 22d year, he was court surgeon and privat docent (1796), and had already published a good introductory work on bandaging and described a part of Loder's physiologic and pathologic specimens.

Two students of Richter—*Just. Arnemann* (1763–1806) and Wardenburg—lived with him in Göttingen. The former came from Lüneburg and at first studied philosophy then later medicine in Göttingen. That university appointed him a professor in 1787 and he went on a two years' journey to Berlin, Vienna, Pavia, Paris and London. The Society of Sciences in Manchester and Joseph's Academy in Vienna, both made him an honorary member. After fifteen years' residence Arnemann left Göttingen, whether on account of Himly who had just been called, or Langenbeck who had just settled there, is unknown. He moved to Hamburg, where he soon took up his residence. Arnemann was full of zeal for his science. Aside from an essay on fatty oils, which won a second prize during his student days, he conducted very successfully an experiment in regenerating living animals. In his first book, devoted to the regeneration of the nerves (1786), after many experiments on dogs, rabbits and goats, he believed he had proven beyond doubt the impossibility of regeneration and held the former demonstrations as untrustworthy and incomplete. The nerve sheaths were said to extend on both sides over the marrow extravasation and when a

firm junction was formed, which he found only in the nerves of the forelegs, in the cruralis and tibialis, the adjacent cellular tissue contributed most largely thereto. In the second volume followed experiments with the brain and spinal column. Arnemann's relation to Richter appears to have been unfriendly from the beginning; this is shown by the fact that besides founding a clinic of his own in Göttingen, when a very young professor he ventured to publish a *Bibliothek für Chirurgie und Praktische Medicin* (Library of surgery and practical medicine) in 1790, at a time when Richter's *Bibliothek* was most popular. He did not once mention Richter's work and thought that in spite of all the journals a new periodical would not be entirely superfluous, because all the others, as everyone complained, were considered either much too lengthy or too brief for practitioners. It was also a fact that the student never contended against his teacher, but almost never quoted him or praised his work. His *Bibliothek* was discontinued after three numbers. Soon afterward a new experiment was made with the *Magazine for Surgical Science* (1797). Not satisfied, the undismayed editor founded for a second time a *Bibliothek* for medicine, surgery and obstetrics (1799) which was chiefly to give general critical reviews from the mass of special periodicals. It lived but two years, while the *Magazine* held out until Arnemann's departure from Göttingen. We have besides, from his pen, a discussion of surgical instruments; a practical treatise on medicine, a treatise on surgical remedies, a hand book of practical medicine and finally a system of surgery (2 Bde., 1798–1801). Like Richter, Arnemann also protested against every one-sided system of medicine; the best operations always seemed to him a reproach to the science. As progress in surgery stands in inverse proportion to the necessity for operations, so the unusualness of an observation is inversely as its value.

His colleague, *G. Wardenburg* (176?–1804), born in Varel, studied in Göttingen, then became Richter's assistant, and went for a year and a half to Paris, where he made friends with Bichat. Appointed professor extraordinary in 1800, he remained in Göttingen only three years, leaving there to become bodyphysician to Prince Sanguszko in Volhynien. His translation (1799) of the surgical inaccuracies of Desault, published by Bichat, made the principles of the great French surgeon generally known in Germany; that is his service. His letters ("Letters of a Physician written in Paris, and with the French Army, from May 1796 to November 1797;" 2 Bde., Göttingen, 1799) are very interesting, giving a glimpse of French surgery. *Christian Frederick Michaelis* (1754–1814) was born in Göttingen. He studied under Richter and afterward in Strassburg, Paris and London. When the hostilities broke out in North America he became general staff physician in the Hessian corps stationed there in 1779. After the war (1783) he received the professorship of medicine in the Colleg. Carol. in Cassel, and three years later accepted the same position in Marburg. His doctor's dissertation (de angina polyposa sive membranacea, 1778) was the first detailed work in Germany which recommended tracheotomy in croup. He gives an especially interesting account of J. Hunter's experiments during his own stay in London in regeneration of nerves, and asserts that not only severed nerves but even large pieces cut from a nerve could, after a few weeks, be made to grow together through simple cellular tissue or real nerve substance, and the grafted piece would again exhibit motion and feeling. ("Richter's Bibl. und Brief an Peter Camper.") Arnemann disagreed with this view. Michaelis reported the methods of treatment of various physicians and surgeons in London and New York ("Richter's Bibl.") as Pott's results in spondylarthrocace, the use of opium in mortification, the treatment of croup among the Americans, gunshot wounds, observations during his stay with J. Hunter and the effect of common salt in internal hemorrhage. (Before 1766 Dr. Schiel had brought to Philadelphia this discovery of an Irish woman; since then common salt had become a general remedy in America for hemorrhage.) Michaelis investigated the difference between suppuration and matter allied to it, described instruments for compression of the art. pudenda comm., for injection in the tuba Eustachii, to check hemorrhages of the art. epigastrica, tourniquet for art. subclavia, etc. ("Progr. de instr. quib. chir. Marburg," 1801.)

There is great temptation to linger over the works of C. J. M. Langenbeck in Göttingen and B. N. G. Schreger in Erlangen, following after A. G. Richter, the most illustrious of German surgeons, but, lest we overstep too far the limits of our work, we must pass them both, since their activity fall entirely within the century.

The other professors of surgery in Germany were quite unimportant. Rougemont in Bonn, through his *Bibliothèque de Chirurgie du Nord*, made the French acquainted with the best German works. The Erlangen anatomist, *Isenflamm*, wrote on diseases of the bones; *Weidmann* in Mainz on necrosis and declared that necrosis is an exostosis, which should be treated not with corrosive but with mollifying remedies; he also opposed the abuse of cutting off gangrenous bones with hot iron, which was then practiced. *Metzger* of Königsberg had for twelve years collected material for his handbook of surgery, but its excessive brevity and superficiality rendered it worthless; his system of medical jurisprudence received greater applause. In Brunswick *Sommer* instituted collections of the choicest and newest works for surgeons, in which he included the best writings of foreigners, translated into German; his great industry resulted in twenty-seven volumes within sixteen years. Emmerich's Academy in Erfurt had a demonstrator, *Löber*, whose elements of the science of surgery was even at that time abandoned as one of the most transient of compilations and completely useless.

Kurt Sprengel, who was professor in Halle from 1789, deserves especial credit for his historical studies. A man of the widest learning, a general historian in the best sense of the term, who was equally proficient in the ancient and the modern languages, he wrote a history of surgery and operations (1805) which, in spite of many one-sided presentations, has not yet been superseded.

Ernest Platner, principally known as an anthropologist and a champion of Stahl's system, and whose opinions on medical jurisprudence were of great value, wrote appendices to his father's "Surgery" (1776), based on a masterly knowledge of literature and so excellently gotten up that one must regret that Platner could not have chosen the career of a practical surgeon. When he said that a practical surgeon would consider one single cure of more value than

this whole book, by reason of his literary studies—a view which he would endorse if he were a practitioner—he only reflected the low state of the culture of his countrymen, and the often falsely understood judgment of his best contemporaries. He translated le Dran's and Morand's surgical writings.

The number of *practitioners* who distinguished themselves in surgery, whether physicians or surgeons by profession, is exceedingly small; and yet what little good was accomplished in German surgery a hundred years ago is due to some of them. Among the results are the tenotomy of Thilenius; Brückner's mechanical compression in case of aneurysm; Vogel's resections and Eckoldt's esophagotomy. That was real progress, of which many German professors of surgery could not boast at all; and if those achievements did not receive due honor at that time it was chiefly because of the meager education of the people. The name of the modest city and district physician of Lauterbach, *Moritz Gerhard Thilenius* (1745–1809), will never be forgotten in German surgery. Although a physician, yet it was he who for the first time, on March 26, 1784, in a case of club foot, had the surgeon Lorenz cut through the skin and the tendon of Achilles, thereby accomplishing a cure. The case made no stir at that time. Richter himself included it in his *Bibliothek*, with other notes of the author concerning a comb (Med. u. chir. Bemerkungen," 1789). *August Brückner*, who was a court physician, died in Gotha (1791) in his twenty-eighth year, had a similar experience. He was the first to accomplish a cure of a true case of aneurysm (art. poplitea) by indirect compression; besides this, he invented a ring tourniquet, and was fully aware that this treatment was the principal remedy (Loder's *Journal*, 1797, I, 248). This observation was also forgotten and modern surgery has yet made little use of the opinions and work of Brückner. He was one of the first in Germany to devote himself to the treatment of club foot. *J. A. Ehrlich* (born 1760) was eminent in Leipzig as an intelligent surgeon with thorough knowledge and operative skill; he was sent upon journeys by the magistrate of that city and later took part in the war and published his surgical notes (2 Th., 1795–1815). In an interesting manner he relates what he had seen in London with Hunter, Earle, Cline, Wathen, Abernethy and others. With him in Leipzig lived *J. G. Eckoldt* (1774–1828), whose name is known to this day through an instrument invented by him for the extraction of foreign bodies from the esophagus, and also through his method of esophagotomy ("Concerning the Extraction of Foreign Bodies from the Esophagus and Windpipe," 1799). *A. Frederick Vogel* (1746–1785) in Lübeck was a good surgeon who, from Richter's school, went upon a three years' journey through Germany, France and England at the expense of the senate and then published his surgical observations (1778–80), which were written with great clearness. He earnestly defended the ligature for the stoppage of blood-flow, therein opposing Agaricus, and was one of the first German surgeons who made resections. The Saxon surgeon, *L. E. Schneider*, in Mitweyda, wrote twelve volumes ("Surgical History, with Theoretical and Practical Comments," 1762–88), containing quite interesting cases, with useless comments and in frightful German. *J. Christian Jäger* lived in Frankfort-on-the-Main, as jury surgeon, after he had completed his studies in various barber shops, and had been employed in Bremen and Hamburg; he left to posterity five volumes of practical surgical precautions (1788–97). Like him *G. H. Fielitz* was the son of a surgeon who, after attending the surgical school in Dresden, had been established since 1773 as city surgeon, in Lukau in Niederlausitz, and contributed various notes to Richter's *Bibliothek*. He paid great attention to all kinds of plans for furnishing the state better surgeons and midwives. *J. Frederick Böttcher*, a practical physician in Berlin, wrote the first complete work since Petit's time on bone diseases, and also a work on selection of surgical bandages (1795), in which only the most necessary were recommended. *Hofer* in Dillingen produced a similar work ("Bandagenlehre," 1790). The Saxon mining surgeon, *J. G. Bernstein*, was also an industrious writer known through a very popular, alphabetically arranged, handbook for surgeons (4 Bd. 1790), a history of surgery and works on luxations, fractures and bandaging. There are a few other physicians and surgeons whom we will meet later in special surgical diseases: *Hagedorn* in Dessau, *Ficker* in Paderhorn, the dentist *Serre* in Vienna, later in Berlin, *Lange* in Lüneburg, *Greding* in Waldheim, and others.

Among oculists in the second half of the last century, we have already mentioned A. G. Richter as the founder of ophthalmology. In this department of science, as in surgery, he gathered the seed in foreign lands and planted it in German soil. Until then the principles of Boerhaave had prevailed but they were now broadened in all directions; indeed, for a quarter of a century, Richter gave to ophthalmology its specially characteristic type. *Joseph Barth* (1745–1818), who has the honor of having introduced ophthalmology into Austria, trained himself independently of Richter; since that time this science has been fostered with great care in the Vienna school. Barth was born in La Valletta in Malta, and studied surgery there and afterward in Rome, and was introduced to Störk and Leber in Vienna. Ophthalmology could hardly be said to exist in Austria at that time. Rich men suffering from cataract went to Paris to be operated on, or sent there for an operator. Barth devoted his leisure hours to this science and in the sojourn in Vienna of the celebrated French oculist Wenzel, who, upon van Swieten's invitation gave private lectures there, he found an opportunity to make himself thoroughly acquainted with the technique of operations on the eye. His first experiments as a practicing oculist, were attended with so happy results that in 1773, in recognition of his special skill in treating diseases of the eye, and in higher anatomy, Maria Theresa appointed him public teacher of ophthalmology with a salary of 800 guilders. He took the place of professor of anatomy and assumed the duty, connected with this office, of caring for the anatomic specimens presented by van Swieten. In 1774 he became ordinary professor of anatomy and ophthalmology, with a salary of 1,500 guilders, which was soon increased to 2,000 guilders. He established a private sanitarium for his ophthalmic patients. When the General Hospital was founded he was given two wards, in which during May and June he operated upon poor patients with cataract who, through an advertisement in the Vienna newspaper, were invited to Vienna from all the provinces of the empire. Emperor Joseph, whom he successfully treated in a dangerous disease of the eyes, was personally attached to him and appointed him imperial

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court oculist. In 1786 he accepted the chair of physiology. His anatomic work expanded in a brilliant manner when he received the means to build in the new university an anatomic amphitheater for three hundred students; the state bought his specimens for 2,000 ducats. His activity as a practical oculist was just as marked. From far and near patients streamed into Vienna to be cured by him—the only one. His private sanitarium had long been inadequate, and the collegium, made vacant by the suppression of the Jesuits (1773), and the Spanish hospital were opened to him. In 1787 over three hundred cataract patients were operated upon.

In order to preserve his experience to the State for future times, the sick Emperor, four weeks before his death, ordered that for a salary of 1,000 guilders, Barth should instruct the two demonstrators, Ehrenritter and Adam Schmidt, in ophthalmology, for which A. G. Richter's works were taken as a basis. But he could not have possession of the money until both men should prove their skill through six successful cataract operations, a test which was brilliantly established the following year. When Joseph II. died, Barth's love for public activity weakened, with a stain upon it; in 1791 he had himself pensioned. He now gave himself up to the study of antiques, and was recognized by the greatest artists of his time as a genuine connoisseur. His collection of intaglios was unique of its kind. The malignity of public attacks upon him made him exceedingly diffident and unapproachable. Except a small treatise on cataract operations without assistance (1797), and a work on muscles, he wrote nothing. His pupil, *A. Schmidt* (1759–1809), became professor of ophthalmology and teacher of anatomy and surgery in Joseph's Academy. After the "Bibliothek," published by him and Hunczovsky, was discontinued, he and Himly, in Göttingen, founded the ophthalmological Bibliothek (3 Bde. 1802–7). His name is immortalized in music, because for a long time he treated Beethoven for deafness, who out of gratitude dedicated a great Trio to him (op. 38, 1801), and expressed the desire in his holy will and testament that after his death Schmidt would describe his sickness. A second student of Barth lived with Schmidt in Vienna, Professor *G. J. Beer* (1763–1821), who as professor, author and practitioner, contributed very considerably to the advancement of ophthalmology. Students flocked to him from all countries and there were at that time few oculists who did not have him to thank for their training. Professor *Lobstein* in Strasburg and Professor *Jung* in Marburg, are well-known; and also *Siegerist* in Gratz, *Willburg* in Gemündt, and *Hellmann*, city surgeon in Magdeburg. The last mentioned was a skilful oculist of no mean reputation; he performed fifty operations for cataract within seven years (32 successful, 10 partially so, and 8 unsuccessful. "Gray Cataract and its Extraction," 1774). While Richter was a professor in Göttingen, *Hellmann* was called to Hanover, where he operated in the presence of Zimmermann.

(To be continued.)

SOCIETY PROCEEDINGS.

New Jersey State Medical Society.

Proceedings of the one hundred and thirty-first annual meeting held in Atlantic City, June 22, 1897.

PRESIDENT T. J. SMITH, M.D., Bridgeton, called the session to order at noon. It was opened with prayer by Rev. W. M. WHITE.

The Address of Welcome was made by Mayor F. P. STORY, and after some routine business, the report of Committee on Legislative Action on Bovine Tuberculosis was read by the Chairman, Dr. J. W. STICKLER. "The number of cases of bovine tuberculosis examined since the last report is about 1,200: Tested with tuberculin, 214; condemned by the test and physical examination, 159; total sum paid for condemned animals, $3,849.74; an average of $23.57 per head, including registered." The above is quoted from the Commissioner's report. Considering the great prevalence of tuberculosis in cattle in our State, especially in the southern section, in Morris and Essex Counties, from 6 to 10 per cent., I am told by competent authority—the Commission is not accomplishing as much as the emergency demands. Again, the State Board of Health reports 3,758 deaths from consumption during the last year, which is 417 more than the average for the past eighteen years. In other words consumption causes about one-eighth of all deaths in New Jersey. It is in view of these facts that the New Jersey State Society wishes thorough work to be done by the Commission already formed, or by a commission which we as a special committee of the State Medical Society would like to form. One obstacle to the proper performance of the work of the Commission is the very small appropriation made by the legislature. It is to be hoped, however, that in time, when the great importance of the work shall be recognized, all hindrances will be removed and the State amply protected.

After a recess, Dr. WM. H. ISZARD of Camden reported on

APHORISMS IN MEDICO-LEGAL TESTIMONY.

He said that an expert in medicine depended mainly upon skill and experience. An expert witness is one whose opinion in medical points is valuable for his accurate knowledge of the subject under consideration. An expert in law is one who is experienced, skilful or having peculiar knowledge of the certain subject or in certain matters, in other words, a scientific witness. Testimony is used more frequently in the Bible by writers than either in medicine or law. It is defined as evidence of a witness under oath or affirmation. All medical testimony is expert testimony in a qualified sense. Expert testimony is that which is usually denominated by the term corroborative testimony. Many lawyers object to expert testimony because so-called experts differ in opinion and statements and will endeavor to break the testimony of good medical men because of this fact. It must be admitted that such witnesses do often differ, and we find them backing their opinion in heated discussion as to the cause of disease. Thus in typhoid fever and insanity legal proceedings are instituted against a city or corporation, for providing unhealthy water; death has occurred from typhoid fever in a family. Men are found who testify that the water does contain specific germs, and thus impress the jury that the water is full of them. In the same court, the other side, by scientific testimony, prove the contrary, viz., that the germs found were the effect not the cause of the disease. Both are equally honest and sincere, hence it is no wonder that lawyers who are not schooled in medical science (and few are) should attempt to prejudice the jury against the reliability of medical testimony. *Insanity:* Hamilton says, especially on the question of insanity, whether civil or criminal cases, we are to determine the influences that may destroy responsibility of an individual, and should always bear in mind that the offices of the physician are only those in which he is warranted in forming an opinion relative to the enfeeblement of the mind through disease. The question of law should not concern him and the courts do not permit him to express more than what he knows. He should always remember the dignity of his calling, never lose his temper, no matter what or how much he may be galled by the impertinences of counsel, who are not always gentlemen. He should never be flurried, give hurried answers, but should demand time and not allow himself to be choked off or interrupted. He should never show eagerness to testify or too much enthusiasm in the cause of the side on which he is called. Testimony should be given in a cool impartial manner. He should be on the alert and avoid being trapped by his opponent. A favorite plan with lawyers is to put a hypothetic question and demand an answer to isolated parts, possibly to get a truthful negative answer to many real elements of insanity: thus, when a man is slovenly or careless in his habits, is this a sign of insanity? An infallible sign? The reply is "No." Yet this and other indications may be an important element of mental disease. Therefore the physician should be on guard and refuse to answer, save in a qualified manner. Remember all dodges will be resorted to. Thus the physician is asked whether he has

read certain works, he replies in the negative. Yet these works never existed. Avoid being drawn into a discussion on various other subjects which are foreign to the case. Refuse to answer any abstract questions not strictly medical. Do not pose as an expert in other fields. It is not wise to pose as a radical and one of more than ordinary ability. Do not tincture an answer with anything extraneous; the witness declares himself an agnostic, he injures the case and renders himself ridiculous. One is not warranted in ventilating, before a jury, any views that he can not maintain. A flippant witness is sure to injure his case, by trying to cause a laugh or by repartee. An old lawyer bides his time and turns his remark against him and creates an opinion not complimentary to him in the minds of the jury. In other words, thoughtless answers destroy the weight of all the sound testimony given before. Keep all the facts before you. Never attempt to give information except what is absolutely demanded. Never explain or enlarge upon something of which you know practically nothing. You may be able to theorize, but before a court you must know practically what you are saying. Called as an expert, theory amounts to nothing. You can not swear by theory. The stenographer notes the testimony, every word is recorded. It is not very complimentary when the stenographer reads his notes to the witness to have it shown that his evidence is absolutely contradictory. Learn the lesson then, be on guard. If doubt crosses your mind let the answer or evidence always be, as far as permitted by the court, given in a qualified sense. There is a growing sentiment in favor of judicially appointed medical and chemic experts. Judge Garrison of our supreme court believes there is a need of medical experts employed by the court so as to do away with the apparent discrepancies between medical experts due to answers on hypothetic questions by counsel. A bill has been introduced into the Minnesota Legislature and one in New York, bearing on this subject. The central idea is that the expert witness should be judicially selected and properly qualified and not depend upon their remuneration from one side or the other. This would be a great improvement on the present system, where medical men hire themselves to testify in criminal cases to suit counsel rather than the unfolding of the truth.

Dr. CHARLES YOUNG, Newark, reported upon

SURGERY.

He gave a brief review of the progress made during the last year. He mentioned the results obtained by Murphy in end-to-end union of blood vessels. These were united by continuous suture; in one case, after five weeks, where suppuration had occurred and hemorrhage from the sloughing point, he had to ligate the artery above and below, and resect the damaged vessel: recovery occurred without disturbance of the circulation of the limb. In another case the vessel much torn by a pistol ball, the artery was secured by a clamp and the vein sutured with excellent results; no blood escaped, and the circulation went on. He quoted a new mode of ligation so as to remove the ligature without cutting. The operator places under each tie-loop silk to be used as tractor. The first loop is designated by one simple knot; next with two knots; next with three knots; and so on. When it is desired to withdraw the ligature, that with the largest number of knots is seized and drawn upon a see-saw motion, till at last it slips away, the loop is withdrawn, and the process repeated with the loop having the next number of knots till the last and the whole is easily removed. The device is simple and far more efficient than any other known plan. Especially is it serviceable in deep-seated ligatures for stumps or pedicles and after removal of abdominal tumors. Intravenous saline injections, in cases of extreme shock, had been found of great value. They give a respite from death, during which the organization may recover from the shock, or throw off septic trouble. Local anesthesia in Schleich's method was advocated for preparatory operations; the cocain solution was thrown into subcutaneous cellular tissue. Caution, however, is of great importance as when the tourniquet is removed, the cocain may suddenly be carried into the circulation and to the heart, with serious results. Loosen the tourniquet slowly, say for three or four seconds, then tighten and gradually permit the blood to resume its course. The treatment of tetanus with biniodid of mercury baths and antitoxin, had resulted in recovery. The bath should be 1 to 5000, and followed by no salivation, but great amelioration of all the symptoms. Serum therapy is still *sub judice*. Results vary. Its main utility is as a prophylactic. *Hernia cerebri:* One hundred and nine cases had been reported. The causes were various, and there was great need of prevention of sepsis. Gunshot wounds of the head and trephining had occupied much attention in surgery. The operation is indicated when there is considerable arterial hemorrhage and symptoms of lateral paralysis or spasms. Later, when fever comes on and paralysis, or the presence of the ball is known, the operation may be employed. Wounds of the air passages demand great care as to antisepsis. Chloroform may be used if necessary. We should close the wound in the air passage completely; if the wound be large, in the trachea or larynx, a tube is demanded. Silk makes the best suture for the larynx or trachea; all the sutures must be introduced before any are tied; then the posterior one tied first. Divided muscles must be sutured and when bringing the skin together correct any inversion. Drainage is generally necessary. Wounds of the heart and pericardium have been treated by exposing the site of injury by freely dividing and laying back the walls of the thorax above, so as to obtain free access to the wound of these organs. Then the large vessels above and below the wound are closed by gut, the walls replaced in position, and in certain cases good recovery occurred. Wounds of the liver demand prompt exploration. Employ laparotomy to know what the injury is and to repair it. Use blunt needles for sutures through the hepatic tissue. Tie sutures tightly but slowly. In rupture of this organ, an unusual quantity of blood has been seen to flow into the abdomen. Here flushing was carried on till the part was cleared of the blood, and fragments of liver were seen floating in it. Suture being impossible, the hemostatic effects of hot water were relied on; all foreign matter was removed by irrigation, drainage by glass tubes was employed and good recovery followed. In several cases of gastric ulcer, excellent results were obtained by laparotomy, and suturing. Perforating typhoid ulcer may be thus relieved. Of all diagnostic signs of ulcer, the most reliance can be placed upon an attack of severe continued abdominal pain with nausea and vomiting and increase of the white blood corpuscles. There are no contraindications to the operation. Lateral anastomosis by Senn's operation was mentioned as having been performed on dogs, producing complete end-to-end union. The indication in operation for appendicitis was considered. Continued frequent progressive acceleration of the pulse, in the absence of other dangerous symptoms. Local pain was valuable when sudden and with a chill. Increase of the temperature is third in importance. A gradual subsidence of these symptoms is a legitimate reason to postpone the operation. He spoke of intestinal anastomoses, etc., and then of fractures treated with the ambulatory plan. The plaster appliance enabled the patient to walk about on the sole of the apparatus. It promotes the formation of callus and even enables one to attend to business. This plan is still being improved upon. Massage and mobilization of the part are liable to cause danger as producing scanty callus. Many very interesting cases were quoted from various authors.

Dr. HENRY MITCHELL, Secretary of the State Board of Health, reported upon

STATE MEDICINE AND HYGIENE.

He said scientific investigation has been industriously pursued during the past year. We have acquired a store of new facts. Bacteriology yields many treasures to the student. Protective inoculation is destined to be successfully applied in many ways if not to all diseases. Immunity as obtained by Koch against rinderpest and diphtheria has stimulated work in this manner. Vaccine bacteriology has been worked at by several and Klein and Coplin describe small bacilli in vaccine and variolous lymph, which they think is the true bacillus of smallpox. The typhoid bacillus has not yet been found to induce the disease experimentally, but the diagnosis of this disease by observing the reaction of the addition of serum from a typhoid case to the blood, has attracted much attention, a reliable method of diagnosis although thus far not much certainty has been obtained for want of more experimentation.

The investigation in England, by the local government board, on oysters and infection from sewage, shows that the typhoid bacillus and that of cholera may live in salt water for two or three weeks and thus the oyster may be a source of contagious disease. Oysters and other shell fish from polluted beds may convey both typhoid fever and cholera. Sanitary supervision of the oyster industry is demanded and the sale of that which is doubtful should be prohibited. Formaldehyde as a disinfectant, has caused a revival of interest, among sanitarians, concerning methods of purifying premises when infected with disease. Test culture has rendered it possible for health officers to prove their work, and show the efficiency of the cleansing. Steam as a disinfectant can perhaps never be supplanted when properly applied as a germicide, but it is not always practicable. As a germicide a solution of formaldehyde is excellent; not being poisonous, capable of destroying the bacilli with great certainty it is warmly welcomed, and its use is extending with remarkable rapidity. A novel device for purifying sewage has

been introduced by M. D. Cameron, Exeter, Eng., the septic tank system. Raw sewage flows into the tank, from which all light and air are excluded to favor the development of putrefactive organisms which are believed to be the cause of rapid changes in the sewage. Fermentation follows, and causes the suspended organic matter to be thrown into the solution; the overflow is odorless and comparatively clear. The effluent is still further treated by passing it through coke breeze filters, when it is discharged as a clear sparkling fluid, without smell.

The mortality among infants, during the summer of 1896, was unusually small in the cities of New Jersey, and the commonly accepted explanation is that many mothers and nurses have learned the value of pasteurization of the milk; hence we have reason to expect that infant mortality will be further decreased in the future. Applied hygiene has made gratifying progress in schools. Boston has for several years had daily medical inspections by the sanitary authorities, to check the spread of disease, especially diphtheria. The result has been so satisfactory that the measure has been adopted by the city as a regular system for promotion and protection of public health. New York City has recently adopted the same plan. All show the great value of this branch of the service. The medical inspectors of the schools report many cases of disease kept out of school. There is need of coöperation of the Boards of Education and the Health Inspectors, then, without waiting for the passage of a law such inspections can be thorough in all New Jersey. Closing of schools is undesirable and should only be resorted to to prevent the spread of infectious disease.

The Sanitary Convention of Venice, in February and March 1897, to prevent cholera from India and other eastern countries, marks a progressive step. Since 1851, the first sanitary convention, there has been a gradual yielding to the view of inspection, isolation of the sick and disinfection, as a substitution for the long and vexatious quarantine. Commercial interests always dominated in maritime quarantine and the necessity for relief to trade led to attempts in Europe to prevent the spread of infectious disease, so as to avoid this delay. In the twelfth century, the republic of Venice, after being devastated by repeated epidemics organized a system of inspection and detention of vessels from infected ports of Asia, and established a *lazaretto* to which all passengers, grew and cargo were committed. Thus began by slow degrees the maritime quarantine which has prevailed for five hundred years in the western hemisphere. The national tendency is to modify the harassing features, as advancing knowledge of disease will permit. The port of New York has kept pace with the best service abroad, and the facilities for disinfecting passengers and baggage is unsurpassed.

Measles has demanded considerable attention from health officers, because of varying views. Hitherto it has been allowed to go without isolation, hence we have reaped with exasperating regularity an epidemic every three or four years. This could be wholly prevented by isolation of the early cases. The difficulty is almost insurmountable. It is exceedingly infectious in the pre-eruptive stage, and thus persons not immune are exposed. In the prevention of tuberculosis great activity is shown everywhere. The New York Board of Health has been led to place it among the list of noticeable diseases. In our State no measures like this have yet been possible; but the people will soon demand progress in this as well as other matters; in fact we may say the demand is even in advance of the sanitary authorities. The relation between the health boards and the people is in strong contrast with the conditions existing several years ago. We believe that official inactivity is due to the inadequate supply of trained employes. Instruction is provided for every other profession, but none for sanitary officers, either by the State or private plans. Hence Boards of Health are compelled to entrust the enforcement of health laws to the unskilful. The Medical Society of New Jersey has led for one hundred and thirty years in many good works. Why not give us reform in the selection and education of health inspectors? Last year we took action which resulted in placing on a permanent basis the State Bacteriological Laboratory, and without doubt the same influence could, if exerted, establish in the State, a system for training health officers. This would give us a class of men capable of intelligently applying the arts of hygiene now being promulgated with almost daily additions.

In the evening the President delivered the annual address, his subject being "The Problem of Dependency." The address was devoted to an appeal in behalf of the insane, and the feeble-minded and the society was so impressed by his arguments that a committee was appointed to consider the subject, and granted power to act, with the view of obtaining an act of the legislature which will aid in the care of these unfortunates.

Dr. L. Faugeres Bishop of New York, then read a paper on

SOME IMPORTANT POINTS TO BE CONSIDERED IN THE TREATMENT OF ACUTE LOBAR PNEUMONIA.

He thinks we are still seeking the best method of treatment, but that there is a tendency to overfeed. It is questionable whether in the acute stages of this disease with the undoubted accompanying congestion of the abdominal organ, whether harm is not often done by stuffing the stomach with milk, to the production of large quantities of gas and upward pressure on the diaphragm. Now and then a feeble voice is raised against overfeeding, but we have learned too well the lesson of support. The lesson of feeding in other febrile diseases causes us not to consider the shortness of the attack of pneumonia. There are undoubted benefits in restricting the diet in so acute a disease. Overfeeding means a consumption of physiologic force in the digestion and assimilation of food; it means the diversion of so much energy from the repair forces of the body to the digestive forces; it means the throwing into the circulation of a quantity of crude food that must be taken care of; it means the presence in the intestinal tract of the waste matter of the food that must be gotten rid of. The patient dying in acute pneumonia does not die from a lack of more remote reserve force, such as might be produced by a system of stuffed feeding, but rather from the failure of the development, when needed, of the latent force already existing. If by a system of overfeeding, such as would produce this more remote force, part of our stock of immediately available energy is used up, more injury than good is done. It is just as if the captain of a ship with an important and pressing commission should stop to replenish coal supply on the wharf when he should be on his journey, burning the supply in his well filled bunkers. Diet should be bland and moderate in quantity. It would seem that only a misconception of the conditions of pneumonia lead to stuffing in a disease in which it is more important to discount future events. An acute delirium in an alcoholic patient, when fully developed, frequently means death. The feeble power of drugs to control this delirium short of paralyzing the patient with dangerous doses, is too well known. If at the outset of pneumonia in an alcoholic patient, we foresee that the day of delirium is bound to come, we can, by the free use of safe sedatives avoid, or at least limit, the delirium of the latter days. If such a patient, from the beginning of the disease, is brought under the influence of bromid in efficient quantities, the use of the more powerful sedatives at a later period may be avoided. After delirium is once thoroughly established bromid is a drug too mild to be useful. It should be begun at the outset, given freely so that the patient gets half an ounce to an ounce in twenty-four hours. Lives have thus been saved. The next point in this disease is the value of hydrotherapy. The great problem is the maintenance of the circulation in spite of the obstruction in the consolidated lung. We must regard the circulation as a whole, not concentrating attention upon the heart or the lung or the system, always remembering that what benefits a part benefits the whole. The stimulation of the heart and the use of vaso dilators to relieve the burden have been briefly considered. Hydrotherapy is not frequently enough employed in combatting the symptoms, prostration and blood stasis. The difficulties and prejudices to be overcome before it can be generally adopted in pneumonia are so great that it is with difficulty one undertakes to break the ground. It has been so much the property of men who have prostituted medical science to personal profit, that much of value has been lost to conservative practitioners. No one who has witnessed the splendid results of systematic cold bathing in typhoid would ever be willing to be cut off from this resource in a severe case. So in pneumonia, hydrotherapy properly adapted to the condition of the patient would reduce mortality as much as in typhoid. Its value extends far beyond the limits of mere reduction of temperature. The effect is a general tonic to the nervous system. To accomplish these results the temperature and duration of the bath must be properly adapted to the case and conditions present, but there is one element in this application that is of so much importance that we are almost tempted to alter our terms and speak of the treament as "tub-rubbing" instead of tub-bathing. While in the bath the patient must be rubbed properly on every part of the body by a number of trained attendants. Without the rubbing, the bathing in an acute disease is a fearfully dangerous procedure. The direct care of the heart is equal in importance to the attention to the delirium and the destructive forces of the high temperature. Every one who has watched a patient with pneumonia, from the onset to the termination, has felt that the heart was the organ upon which the brunt of the battle had fallen. No question is of equal importance or greater difficulty than that of heart stimulation.

We approach this problem with humility because there are so many points where definite facts are not known. The mechanism of the heart and circulation are admirably adapted to fulfil their functions. The heart has its wonderful nerve supply, both from the central nervous system and also from the ganglia within itself. The blood vessels are governed by the vasomotor system acting as a system of regulators. In health the slightest mental or physical exertion is followed by increased effort of the heart and respiration. When disease or obstruction to the circulation or breathing occurs, the heart responds by increased labor to overcome the obstruction, and the lungs work even to a greater degree. Hence the question of stimulation resolves into an inquiry as to whether we can with advantage supplement the natural stimulus. We may have unsafe stimulation and exhaust the natural resources. We can not control the action of the heart and conserve its forces to calm the stimulation of an excited nervous system and thus reserve the force required to tide over a critical period. Nutrition of the heart is also of great importance. Hence we may conserve the forces early by controlling delirium by using a proper antipyretic, but at the same time tonic bathing and such drugs as will relax general circulation and diminish hyperactivity of the heart. The aconite group affords very valuable properties. Faith in the value of hydrotherapy is more the growth of time and thought. Its literature is meager. To carry out this method requires courage, skill and apparatus. Until an antitoxin is discovered, the treatment of pneumonia must be expectant in its analysis; protect the patient from harm, and support him to resist the disease. Judgment is the great need.

Dr. EVANS of Morris Plains Insane Asylum exhibited a variety of articles taken from the stomach of a patient who, after swallowing this vast load of stones, spoons, etc., died of starvation.

The Society reassembled on Wednesday morning, and Dr. R. NEWTON COLES of Montclair read

A CRITICISM OF MODIFIED MILK AND PRESENT DAIRY METHODS.

The Doctor said that when we consider the fact that the present science of lactology, if he might coin the word, is only about twelve years old, the progress that it has made is a matter for congratulation and a promise of much better things. He greeted with approval Professor Corsi's prediction that "within ten years the discoveries in bacteriology will produce a complete revolution in almost every branch of the dairy industry."

His subject offered so many and such varied phases for discussion that he was obliged to confine his remarks to the dietetic value of milk from the clinician's standpoint. Systemic writers all agreed that cow's milk must be more or less modified before it can be used for infant food. He objected to the stand taken by some writers, that the milk of cows can be so satisfactorily modified as to make it undesirable to experiment with the milk of asses, goats or mares, and alluded to the fact that the Kurds drink mare's milk made into koumiss and that phthisis is never known among these people. He also spoke of the experiments made in Paris in 1883, in which sickly children nursed asses directly and 70 per cent. of them survived, whereas of these cases heretofore all had died.

The ass is a docile, hardy and long lived creature, and less liable to tuberculosis and similar diseases than the cow. Schwartz, who prefers goat's milk for infants' and invalids' food, was quoted, and the establishment of dairies that would furnish asses' and goats' milk as required for use was advocated. The doctor said that it is an exceedingly encouraging sign of the times that the dairymen themselves have set to work to improve their own dairy products. He believes that there is very much yet to be done, and spoke at considerable length of the poison known as tyrotoxicon, which is probably the chief cause of cholera infantum. The presence of this poison in milk is not perceptible to any of our senses. Hence its great danger. Fortunately, it will not be found in properly aerated and cooled milk. The antitoxic property of fresh milk then engaged attention, with a number of interesting observations which prove that all fresh milk has certain germicidal properties. This shows that the general assertion that milk is a perfect culture medium has several limitations. It is evidently very desirable to retain this antitoxic quality in the milk as long as possible, as it is doubtless one of the reasons that nurslings are less susceptible to infection than older children. The study of this newly opened field offers great promise to investigators. Next he considered the reaction of the milk and showed the great advantages likely to follow if dairy milk could be kept alkaline for considerable periods without the use of chemicals. He quoted Rotch, who says that ten pounds of Austrian sugar beets fed to milch cattle every day will keep the milk alkaline, and also that cattle pastured on limestone lands, or the blue-grass regions of Kentucky, will give milk that will remain alkaline for a long time.

A number of facts are given to show the exquisite sensitiveness of milk to any change in the animal's diet, surroundings, care or treatment, and particularly in the way the process of milking is carried out. As to the bacteriology of milk, the limits of this paper prevented its consideration. Two years ago over two hundred varieties of bacteria had been demonstrated in milk, and each species produced its own form of fermentation. This phase of the subject opened another important and as yet only partially explored field. The writer then quoted from Mr. Ernest Hart's recent address on the "Conveyance of Contagion by Milk" and alluded to our ignorance of some of the most important facts connected with this means of infection. He also showed that the most carefully handled and Pasteurized milk might entirely disagree with infants and quoted cases to prove his point, dwelling particularly upon the bad effects of agitation and movement of milk and also upon certain occult but as yet irremediable changes which occur in milk, merely from lapse of time, which impair its dietetic value. He dwelt upon some important facts which investigation had brought out in reference to the spread of tuberculosis among dairy cattle. Professor Bang, Dr. Theobald Smith and Dr. E. A. de Schweinitz have done much to show that tuberculosis rarely appears in small herds of cattle, and also by sterilizing the milk fed to the calves of tuberculous cows and by a strict isolation these calves will grow up non-tuberculous. The danger of tuberculous infection in neat cattle increases in geometric progression with the number of cattle kept together and the number of hours during the twenty-four in which the cattle are housed. There seems to be no reason why Alvord's excellent suggestion, not to milk cows in the stables but in an airy, light and disinfected place kept free from excrement, flies and dust, should not be generally adopted by our dairymen. The Doctor concluded his paper with the following: "Fortunately the day of rationalism in medicine has begun to dawn and the clouds of superstition and ignorance are fleeing away. Whatever unsanitary evils can be prevented by scientific knowledge and hygiene we are today struggling to get rid of. We rely less upon drugs than did our ancestors, but more upon common sense as exemplified in sanitary science. In the words of the honored secretary of the Society: 'It is only by removing or obviating the causes of disease in general that medicine will make any real advance.'"

(To be continued.)

Chicago Pathological Society.

Regular Meeting April 12, 1897.

The President, Dr. JAMES B. HERRICK, in the chair.

Dr. EMIL RIES read a paper on "Papilloma and Carcinoma of the Fallopian Tube." (See JOURNAL, Vol. 28, p. 962.)

Dr. H. A. BRENNECKE reported a case of "Measles Complicated by Diphtheritic Conjunctivitis." (See JOURNAL, Vol. 28, p. 1221.)

Dr. M. L. HARRIS read a paper on a case of "Benign Cicatricial Stricture of the Ileum. Operation, Lateral Anastomosis. Exhibition of Specimen removed five years after." (See JOURNAL p. 117.)

Dr. J. E. YOUNG presented a specimen of "Defect in the Ventricular Septum." (See JOURNAL p. 118).

Dr. EMANUEL J. SENN read a paper entitled "Inflammation of Joints in Gonorrheal Patients."

SELECTIONS.

The Administrative Treatment of Undefined Cases Certified as Scarlet Fever.—Drs. Frederick Dittmar and Brownlee, both of them formerly or at present attached to the Glasgow Health Office, report on the above subject as follows: "In this communication we intend giving an account of the management of the undefined cases admitted to the Glasgow Fever Hospital, Kennedy Street, from November, 1895, to November, 1896. Prior to the former date there was an arrangement for the special observation of cases of this nature. The hospital, which is exclusively employed for the treatment of scarlet fever, consists of fourteen wards built on the pavilion system, and has accommodation for about 320 patients. The pavilion chosen for the purpose of isolation consists of three divisions separated one from another by brick partitions which extend from floor

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to ceiling, while each division has a separate communication with the outside. Two of them have a capacity of 16,500 cubic feet each, and the third of 8,000 cubic feet. The last has also separate latrine accommodation and bathroom.

"The patients sent to the pavilion were of three classes: 1, cases in which the appearances on admission did not justify a positive diagnosis of scarlet fever; 2, cases where the symptoms and appearances suggested some other disease, *e.g.*, tonsillitis or non-specific erythema; and 3, cases of undoubted illness where the symptoms were obscure, but suggestive of some other infectious disease, *e.g.*, enteric fever. Cases in which some other infectious disease was frankly present were immediately transferred to the Belvidere Fever Hospital without admission to the wards.

"The two larger divisions were used for the first two classes, and the smallest division for the third class of cases. The whole pavilion was under the supervision of a very careful and experienced charge nurse whose powers of observation could be relied on, while each division had its special staff of day and night nurses. During their residence in the ward the patients were carefully observed for signs of scarlet fever, the urine being examined twice daily for albumin and evidence of desquamation carefully looked for. As soon as desquamation became definite or scarlet fever complications showed themselves the patient was transferred to a scarlet fever ward, where he completed the statutory period of eight weeks in hospital. Cases which did not turn out to be scarlet fever were kept in the isolation ward for a period varying with the nature of the case, but as a rule were not dismissed under four weeks, which we considered long enough for any such definite evidence as desquamation or nephritis to develop. None of the cases dismissed from the isolation ward were sent back to hospital with evidences of scarlet fever. The main objection which we have heard raised against the kind of arrangement adopted by us is that now and again patients who ultimately prove to have scarlet fever are mixed with those who do not, and thus may infect the others. Our experience seems to show that this fear is more or less baseless, as no case of scarlet fever occurred in the isolation ward. We tried to minimize the risk of infection by putting the patients at as great a distance from one another as possible and allowing at least 4,000 cubic feet of air space to each. We also cautioned the nurses to take special care when attending a patient the subject of any inflammatory secretion by which infection might be carried.

"The number of cases observed by us amounted in all to 45, and they fall into the following groups, of the more important of which we give typical examples. Of the 45 cases observed, 11 (24.4 per cent.) ultimately proved to be cases of scarlet fever, 6 (13.3 per cent.) belonged to the class of doubtful scarlet fever, and 28 (62.2 per cent.) were not scarlet fever. The last class was made up as follows: Tonsillitis, 11 cases; non-specific eruptions, 4 cases; dermatitis, 2 cases; cellulitis, 2 cases; measles (?), 2 cases; röthein (?), 1 case; bronchopneumonia (one complicated with marasmus), 2 cases; gangrenous ulceration of throat, 1 case; general tuberculosis (?), 1 case; and not classed, 2 cases.

"The cases which proved to be scarlet fever may be dismissed with the remark that the certifying practitioner, having seen the case earlier, had probably more definite and specific signs on which to found his diagnosis. We would call attention to a patient in which no desquamation was observed, though the child suffered from well-marked scarlatinal sequelæ, viz., enlarged cervical glands, rheumatic pains in the joints and albuminuria.

"Of the cases of doubtful scarlet fever there was a fairly typical example. A brother admitted at the same time probably had scarlet fever. He also was considered doubtful at first, but was after a time transferred to a scarlet fever ward on acccount of desquamation on the legs. He was dismissed from the latter after five weeks' residence without having contracted scarlet fever.

"As regards cases of tonsillitis no great difficulty is experienced when they occur singly in a family none of the other members of which are suffering from scarlet fever; but when they arise in a family in which one or more of the members are suffering from scarlet fever they are a cause of great anxiety to the physician in attendance. Attacks of this nature are considered by many authorities to be specific and infectious, and yet they do not seem to confer immunity on the person attacked. We have a good example of this in the family the case of one member of which is reported *in extenso*. On the same day a younger brother was admitted. A day or two later an elder brother and a sister were also sent to the hospital. The history in each case was similar, and on admission there was nothing observed but a tonsillitis. The sister and two younger brothers were transferred to the isolation ward on Dec. 7, 1895, and were dismissed well on Jan. 1, 1896, nothing having occurred to warrant the diagnosis of scarlet fever. The third brother was left in scarlet fever ward, and after twenty-six days developed a typical attack of scarlet fever. Similar cases with a like sequel have been observed by ourselves and are doubtless familiar to anyone who has had charge of scarlet fever wards for some time. We have classified such cases under the heading of tonsillitis, though one might be justified in considering them as cases of aborted scarlet fever. The class of non-specific eruption includes, beside the case of which a synopsis is given above, one case of urticaria and two where an erythema of an indefinite character was present, but where neither the history nor the cause of the case led to any reasonable suspicion of scarlet fever.

"Of the unclassified cases, one patient was hysteric and the other was sent in from a public institution along with another child who was suffering fram scarlet fever. She, however, neither had that disease on admission nor did she contract it."
—London *Lancet*, April 3.

Analysis of Two Hundred Gallstone Operations.—Dr. Kehr of Halberstadt, has in six years performed 209 laparotomies for the relief of cholelithiasis. The mortality in this series was seventeen cases, or 8 per cent. Where the stone was in the gall bladder, and was removed either by cystotomy or cystectomy, the mortality was practically 0 per cent. The highest fatality occurred in those cases associated with some grave complication, as carcinoma of the liver or pancreas, etc. The most remarkable results were obtained in the operations on common duct, where there were only two fatal cases in thirty operations, or 6.6 per cent. This is in marked contrast to the results heretofore obtained. Kehr collected eighty two cases from the literature, in which twenty-six died, giving a mortality of 31 per cent. These results should interest physicians, because, while medicine may be said to have not advanced the treatment of gallstones a step in five years, during the same period operative treatment has made great strides in the hands of the surgeon. From 1890 to 1896 Kehr performed his 200 laparotomies on this behalf. These were performed on 174 patients, some having been operated on more than once. Of these, 23 were males and 151 females. Of the latter, 133 were married, 117 of whom had borne children, and 18 were single. The operations are divided into five groups: 1. Those in which the gallstone was situated either in the gall bladder or cystic duct. Under this group there were 127 operations, with only 1 death. The fatal cases occurred in a man, 64 years of age, who had emphysema and arterio-sclerosis. 2. In twenty one cases a cystectomy was performed, owing to obliteration of the cystic duct or to fibrous contraction of the gall bladder, rendering the latter functionless. The gall bladder was accordingly excised. Only one case died. 3. In thirty cases the stone was situated in the common duct, and was so large that it could not be forced either into the duodenum through the papilla or through the cystic duct back into the gall bladder. In these cases a choledochotomy was performed, the stone being removed through an incision into the common duct. Of this group only two cases terminated fatally. 4. Under this

group were included seventeen cases, in which, instead of the suspected gallstone, either some other disease-process (as ulcer of the stomach, echinococcus of the liver, or wandering kidney) was found, or the gall bladder, being free from stones, was, however, adherent to the omentum, stomach, intestine or abdominal wall. Two of these cases died. These cases demonstrated to Kehr, first, that in some instances an exploratory incision is necessary to make a diagnosis; and, secondly, that adhesions between the gall bladder and adjacent structures may produce colicky pain indistinguishable from that produced by a gallstone. 5. The last group included cases in which, in association with gallstones, there existed various complications, as carcinoma of the liver, stomach, common duct, or head of the pancreas, suppurative cholangitis, syphilis of the liver, or liver cirrhosis. This group comprised nineteen cases, ten of which terminated fatally, while nine obtained relief from their symptoms for periods of from one and one-half to ten months.—*Arch. für klinische Chirurgie.*

Variation in the Size of Drops of Even the Same Liquid.—The great variation in size of the drop furnished by different liquids is well understood, but the large divergence in the size of drops yielded by the same fluid, even under ordinary conditions, is not so fully appreciated. Pharmaceutical literature acknowledges the unreliability of the drop as a method of measurement, yet with singular unanimity gives approximating numbers of drops to the fluid dram for similar liquids. This would leave one unfamiliar with the facts to infer that the number of drops to the fluid dram of any given fluid is fairly constant, which is far from being the case, unless much more than usual attention is paid to the proper conditions to secure what might be called the recognized drop of any given liquid. The use of the drop as a means of measurement is on a par with that of the pinch and handful, and all three are quite unsuitable for potent drugs.

The number of drops of water to the fluid dram is usually given by various authorities as about sixty, and similar figures are accorded to such watered preparations as Fowler's solution and dilute hydrocyanic acid. Our attention was first strongly called to the great ease with which the size of drops can be varied under ordinary circumstances, by being consulted by a prominent physician, in regard to the number of fluid drams of dilute hydrocyanic acid to be used in a prescription, where he wished to secure a certain number of drops in each fluid dram of the finished product. Upon inquiring of him the size of the drop desired, it developed that the physician thought that a drop of dilute hydrocyanic acid always represented a minim. In reply to this, forty drops were dropped from the one ounce glass stoppered bottle holding the dilute acid, into a small narrow-lipped, thin-edged graduate and they were found to measure one fluid dram. The graduate was then elevated and turned until drops began to fall directly from the lip, without the intervention of a guiding-rod, stopper, or any other aid whatever, and one hundred drops were secured from the original forty. In one case the drops were 50 per cent. larger than he expected, and in the other they were only six-tenths of the size anticipated. The larger drops were two and a half times the size of the smaller ones; yet either method of dropping would not be considered unusual.

To show how widely drops of the same liquid will vary in size when obtained under different conditions experiments were made with water, which is much used as a menstruum, and fairly represents several powerful preparations. A fluid dram was dropped under the varying circumstances noted below with a yield in drops as stated:

From the bottom of a ten ounce evaporating dish, the number of drops was 18.

From a two pint funnel, choked with cork for dropping, square, thick end, 24.

From the bottom of a five ounce beaker, 25.

From a six ounce funnel, choked with cork for dropping, square, thick end, 28.

From a large glass stopper, two inches in diameter, 30.

From a five ounce lipped beaker, with guiding-rod, $\frac{3}{16}$ inch in diameter, 31.

From a $\frac{3}{8}$ inch guiding-rod, taking supply from two ounce dropping funnel, 32.

From a four ounce glass stopped bottle (half full), stopper kept partly in neck, 33.

From a two ounce lipped graduate, offhand, without guiding-rod, 45.

From a one dram lipped graduate, offhand, without guiding-rod, 47.

From a two ounce funnel, choked with cork for dropping, slanting end, 52.

From 3 16 inch diameter guiding-rod, taking the supply from two ounce dropping funnel, 62.

From a 3 16 inch diameter guiding-rod, taking the supply from one dram graduate, 96.

From a $\frac{1}{8}$ inch diameter guiding-rod, taking the supply from two ounce dropping funnel, 96.

From a five ounce lipped beaker, offhand, without guiding-rod, 100.

From a five ounce lipped beaker, with guiding-rod, 3 16 inch diameter, 120.

From a pointed guiding-rod, 1 24 inch diameter at point, from two ounce dropping funnel, 160.

From a pointed guiding-rod, 1 40 inch diameter at point, from two ounce dropping funnel, 600.

The drops which were obtained with the very small guiding-rods and from the bottoms of the vessels were abnormal and are only given to illustrate what is possible under certain conditions. The list, however, shows quite plainly how easy it is to obtain drops of water under ordinary circumstances, varying from 33 to 120 to the fluid dram.

There are several factors which cause the drops of the same liquid to vary in size, among which are the adhesion of the fluid mass to the solid which it bathes, the cohesion of the molecules of the liquid to each other, the gravity of the fluid, the temperature, the rapidity of dropping, and the area and shape from which the drop falls. The adhesion of a liquid is greater for some kinds of solids than for others. If a liquid does not wet a substance, it is because its adhesion for such a material is overcome by the cohesion of the liquid. Films of grease covering a dropping surface, in part or completely, have a decided influence in altering the size of the drop. A fluid dropping from such a non-wetted surface has principally the adhesion to overcome, as it is weaker than the cohesion which holds the liquid particles together. When the solid is wetted, cohesion is stronger than adhesion and it is the cohesion which has to be overcome before the drop can fall.

The gravity of any mobile body determines in a considerable degree, its ability to cling to different surfaces and results from certain surfaces for one liquid are not necessarily proportionately correspondent for a fluid of different gravity.

Differences of temperature cause variations in the viscosity of fluids and in this way influence the size of the drop. In liquids which readily become viscid, at not unusual degrees of cold, this factor is most marked. In liquids like water, whose mobility is but little effected by ordinary changes of temperature, the size of the drop shows but slight variation from this cause. As an illustration, water from a two ounce dropping funnel gave 44 drops to the fluid dram at 0° C., 47 drops to the fluid dram at 22°C., and 47 drops to the fluid dram at 100° C. These indentical results were obtained in each of three trials at the three different temperatures.

Rapid dropping furnishes smaller drops than when the dropping is done slowly. This is due to the momentum of the liquid, which as the velocity of its flow is increased, enables it to more readily overcome causes which tend to produce a larger drops.

The area and shape of the surface from which the liquid drops, probably causes the most important differences in the size of drops from any one liquid. The larger the surface to which the fluid can cling and from which the drop mass can secure material at the period of its segregation, the greater the drop will be. Small guiding rods give smaller drops than larger ones, and guiding-rods of similar size with conical ends yield smaller drops than those whose ends are globular. Rounded or globular surfaces are well adapted to illustrate the great influence which is exercised upon the size of drops by the area of the surface from which the drop actually falls. Plane surfaces are not suitable, as it is almost impossible to prevent the dropping from occurring at the edges. In the case of water, above illustrated, the size of the drop steadily increased from the rounded surface 1-40 inch in diameter up to the one ten inches in diameter. At certain diameters for different liquids, a point is no doubt reached, where, from conditions being carried to extremes, a drop is obtained of equal size to that which is possible from the under side of a perfectly level plane surface of unlimited extent.

Where wild guessing is not permissible, fluids should not be dropped, but should be measured. The minim or 1-10 c.c. should be used for describing small quantities of liquids, and in cases where it is absolutely necessary to use drops, but little dependence should be put in their estimated sizes, but an actual trial should be made of the material in the way it is intended to be dropped, that one may know what part of a fluid dram this particular kind of a drop actually represents.—GEO. F. PAYNE, M.D., in *Druggists' Circular.*

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INFORMATION WANTED.

It would greatly facilitate the prompt delivery of the JOURNAL to those members of the ASSOCIATION living in large cities, if they would kindly furnish this office with their street address in those cases where it is omitted from the wrapper of their JOURNAL, as we have been notified by the postmasters of the larger cities that second-class mail matter not having street address, would be placed in the general delivery to await call.

SATURDAY, JULY 17, 1897.

MEMBERSHIP IN THE ASSOCIATION.

That the ASSOCIATION is growing in membership at an unprecedented rate is perhaps not known to all the members. We therefore take great pleasure in informing them that 763 names were added to the membership list at the Philadelphia meeting.

The books show an increase from June 1, 1896, to July 1, 1897, of 1,500 names. For the same period, our books show an increase of an even 500 on the subscription list.

These are gratifying evidences not only of the sincere desire of the medical profession to organize under the ASSOCIATION banner, but that its JOURNAL is fairly satisfactory. It will be the aim of the present management to make the JOURNAL more and more useful to our colleagues with each succeeding issue.

This is an appropriate occasion to invite members to do their part toward increasing the membership. Help us pass the ten thousand mark before the close of this year. Every one can help. Blank applications for membership can always be had by writing to this office for them. "Be not weary in well doing."

THE ROLE OF THE SPLEEN IN INFECTIOUS DISEASES.

Other than that the spleen plays some part in the destruction of old blood-corpuscles and the generation of new, little is known concerning the function of this organ. That it is somehow affected in the course of many of the infectious diseases is apparently shown by the frequency with which it undergoes enlargement of size in conjunction therewith. Various hypotheses have been propounded as to the nature and the purpose of the alterations that take place, but none has thus far withstood the tests of experimental inquiry. It is therefore a source of satisfaction to note that the subject has recently been taken up and given consideration on a generous scale by BLUMREICH and JACOBY (*Berliner klinische Wochenschrift*, May 24, 1897, p. 444) at the Second Medical Clinic of the University of Berlin. These observers made a careful and scientific study of the influence exerted upon the susceptibility of guinea pigs to infection by bacteria and their toxins respectively by reason of the presence or absence of the spleen. After a little skill had been acquired in the technic of the extirpation the animals operated on speedily recovered and gained in weight.

Diphtheria bacilli and active diphtheria toxin were first experimented with. Twenty-four animals were taken and the spleens removed from twelve. Of each group six animals were now inoculated with the bacilli and six with the toxin. Those of each kind treated with the toxin presented like symptoms, all dying at about the same period; while of those inoculated with the bacteria the six from which the spleens had been removed resisted fatal doses longer than the control animals, the latter dying on an average after 34½ hours, the former after 47 hours.

Fourteen normal animals and twelve from which the spleens had been removed and all inoculated with virulent anthrax bacilli died at about the same time; only one animal deprived of its spleen recovered. These observations with regard to anthrax bacilli are practically in accord with those of others, apparent variations being due to differences in degree rather than in kind. Between animals with and those without spleens treated with pyocyaneus toxin there was little or no difference, although of fifteen from which the spleens had been removed two died (one through an accident) and thirteen recovered, while of twelve normal animals treated similarly eight died and a ninth was made very sick.

Again of eighteen animals without spleens treated with cholera bacilli four died and fourteen survived, while of fifteen normal animals similarly treated thirteen died and two were made very sick.

It would thus appear that guinea pigs deprived of their spleens possess an increased resistance to infection by the bacilli of diphtheria, pyocyaneus and cholera, but not to their toxins. To determine if this peculiarity is dependent upon the removal of the spleen from the body or merely from the circulation the spleen was ligated in nineteen animals. The operation was borne badly, fifteen animals dying in a short while and only four being available for further

experiment. In these the results were found to be just the same as when the spleen had been removed from the body. The conclusion would thus seem justified that it is really the removal of the spleen from the circulation that is responsible for the increased resistance of guinea pigs to bacterial infection.

To determine if the blood of animals deprived of their spleens is endowed with the property of diminishing the virulence of bacteria in greater degree than the blood of normal animals virulent cultures of the bacillus pyocyaneus were brought in contact for several hours with defribinated blood obtained from normal animals, as well as from others deprived of their spleens, and the mixtures injected into other animals. The results were constant that the animals treated with mixtures of bacteria and the blood of normal animals died earlier than those treated with mixtures of the bacilli and the blood of animals deprived of their spleens. The conclusion seems therefore justified that the blood of animals deprived of their spleens possesses a greater bactericidal activity than that of normal animals. Bacterial toxins on the other hand behaved in the same way with the blood of both sets of animals; that is their activity was in no wise enfeebled.

In order to determine if experimental infection could be neutralized by hyperleukocytosis and if this result were to be attributed to the bactericidal action of such blood from the presence of the increased number of colorless corpuscles, the blood of sixteen animals was taken and counted before and at various times after extirpation of the spleen. In fourteen considerable increase in the number of leukocytes followed; in two there was a diminution, but in one of these suppuration took place and in the other death resulted on the fifth day from pneumonia. To demonstrate that the hyperleukocytosis was not dependent upon the operation rather than upon the removal of the spleen it was shown that the blood-state did not occur when the remainder of the operation was performed while the spleen was left intact. It was further found also that the hyperleukocytosis resulted when the spleen was merely ligated and thus excluded from the circulation only.

The evidence would thus go to show that removal of the spleen is followed by hyperleukocytosis, increased bactericidial activity of the blood and increased resistance of the body to certain forms of bacterial infection. There is thus afforded an explanation why animals deprived of their spleens are more resistant to bacterial infection than to intoxication with bacterial products and also why in diphtheria, in which the toxic factor preponderates, destruction of the bacteria is of so little direct importance, and why the infection of cholera is so readily overcome. It must, however, be remembered that the protective influence of the leukocytes is limited both in degree and in time. Perhaps in this fact is to be found the explanation of the aberrant results obtained with anthrax bacilli.

Now it may be suggested that if immunity to infection on the part of animals deprived of their spleens is due to hyperleukocytosis, opposite results should be secured if bacterial inoculation preceded removal of the spleen. The correctness of such an assumption was demonstrated by inoculating fourteen animals with bacilli pyocyanei and several hours later removing the spleens from eight. Of the latter six died, while of the six control-animals only two died. It may be, that other changes, chemic or morphologic, in addition to hyperleukocytosis, may have some share in the effects produced. Future investigation will have to determine whether the changes effected follow only removal of the spleen or other lymphoid structures or may develop in the sequence of removal of any other important organ. It has already been shown that injections of extracts of spleen, thymus and bone-marrow (lymphoid organs) induce hyperleukocytosis, while extracts of other organs do not. It yet remains for the clinician to determine whether in diseases attended with enlargement of the spleen and hyperleukocytosis, or hypoleukocytosis, these respective conditions bear a constant definite relation to one another and whether the enlargement of the spleen, like the number of leukocytes, is of favorable or unfavorable prognostic significance.

THE NERVOUS ACCIDENTS OF BICYCLING.

The bicycle has become so an important element in modern life that it is certainly worthy of an occasional mention by the medical press. The subject has not been exhausted in its hygienic and medical relations and new points arise from time to time for consideration. A few weeks ago the nervous disorders induced by bicycling were discussed, not exhaustively it is true, by certain English physicians and it was pointed out that excess in this as in other reasonably good things had its more or less damaging influences. Other than medical writers have discussed also the iniquities of this modern indulgence, the bicycle hump and the bicycle face are matters of common jest, not on the principle of ridiculing a false alarm, but as an evidence of the popular taste for the ridiculous even in self-inflicted misfortunes. Still the bicycle becomes daily more popular and its influence on our civilization will be seriously discussed by future historians and students as much as will its physical effects by physicians.

Much of what has been said against the bicycle, without doubt, falls into that class of hygienic criticism that, if sufficiently influential and accepted, would make life miserable by depriving it of all its pleasure. Still there is something to be said to its disadvantage now and then and this is accentuated by the almost universal use of the wheel by persons of all ages and

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classes at the present time. Extreme youth and advanced age have each their special drawbacks; in the one there is the possibility of overtaxing and possibly of deforming an only partially developed organism, and in the other the general danger of overstrain of an enfeebled one together with the special hazard of aggravating certain senile weaknesses. For the great mass of mankind of either sex the dangers could hardly be said to counterbalance the advantages if it were not for the tendencies to the excessive use and the abuse of what ought to be a pleasant and profitable exercise. The pleasure of rapid movement and the emulation and competition, the sporting instinct that exists in almost every one, all have their part, and the results are often disastrous. To say nothing of the frequent surgical accidents, the bad effects of vesical and prostatic irritation, the heart strain, and other disadvantages that have been frequently pointed out and are incontestable, there are yet other possibilities of evil. Drs. SEMPLE and TAYLOR have reported myelitis as a direct consequence of excessive use of the wheel, and another English physician, speaking from personal experience as an observer of road races and other bicycling sporting events, gives quite a formidable list of the nervous accidents he has seen follow in the participators. Most of them it may be presumed were only temporary, but some may not have been, and temporary or not, none of them were desirable symptoms. It would be interesting to know the extent of the nervous symptoms that actually do occur in scorchers and bicycle racers; as yet we have only a few observations on record, but these are suggestive and lead us to suspect that there are many yet to be reported. The use of the bicycle is rapidly extending and it is only a few years since it became so general; any remote nervous effects of its misuse have therefore hardly had time to develop. With its extended use there have been some improvements in a hygienic point of view; the pneumatic tire, reducing the jar, is one; the improved saddles are another; but modern high gearing and the tendency to sacrifice everything to lightness and speed are perhaps advances in another direction. In any event it will be long before all the medical aspects of the subject are fully discussed; they are all the while developing. But there is certainly room at the present time for a complete investigation of the effects of the altogether too common misuse in many ways of the bicycle upon the nerves and central nervous system.

THE BACTERIOLOGY OF MUMPS.

It does not seem unreasonable to believe that the entire group of so-called self-limited diseases, including among others the exanthemata, pneumonia, acute rheumatism and chorea are dependent upon bacterial invasion. The dependence of many of these upon specific bacteria has already been demonstrated and it is not improbable that the near future will bring similar demonstration for the remainder. The list of the former is steadily growing, while that of the latter is correspondingly diminishing. Among the latest of the disorders which have been shown definitely to owe their origin to microörganismal activity is mumps.

PASTEUR noted in the blood of patients suffering from this disease bacilli 1 μ thick and 2 μ long. CAPITAN and CHARRIN, and also OLLIVIER, observed in the blood and in the urine of such patients small rods in addition to cocci. BOINET found in the blood cocci arranged in part in pairs and in part in chains. LAVERAN and CATRIN, and later MECRAY and WALSH, found partly in exudates and partly in the blood diplococci capable of cultivation on artificial media. At a recent meeting of the Berlin Society for Internal Medicine MICHAELIS (*Deutsche medicinische Wochenschrift*, May 13, 1897, Suppl. 1, p. 93) detailed the results of a number of bacteriologic examinations made by himself and BEIN in cases of mumps observed at the clinic of Professor LEYDEN, who had some time before noticed peculiar diplococci in the sputum of a child suffering from this disease. These bacteria lay principally within pus cells. In all of seven cases of epidemic mumps recently studied the same organism was found both on microscopic examination and on culture, and not only in the secretion of the parotid gland as obtained from STENON'S duct, but in two cases also in pure culture in the pus from an abscess and in one of two cases examined in blood obtained by venesection.

In spite of this small number of observations the belief is expressed that in view of the constancy of the results the conclusion is justified that the microorganism found may be considered to bear etiologic relations to the disease. The individual microörganisms are 1 μ in size and resemble the biscuit-shaped meningococci and gonococci, although smaller than these. They lie frequently within the cells, sometimes to the number of eight or ten or more, and are also partly distributed throughout the pus or in long chains or strings. They stain readily with the usual anilin dyes, especially with LOEFFLER'S methylene-blue, and they can be decolorized by the method of GRAM. They grow upon the usual culture media, though slowly. Upon agar they develop tiny transparent, dewdrop-like points that do not coalesce. Upon peptone-bouillon they form a white, rather granular than flocculent, deposit, the bouillon itself remaining clear. The growth is more rapid on strongly alkalin than on feebly alkalin media. The bacteria grow also upon ascites-fluid and upon milk, the latter coagulating in the course of forty-eight hours. They are capable of slight movement. Inoculation experiments were unsuccessful, except in the case of a white mouse which died after thirty-six hours. Inocula-

tions of cultures were made into the parotid glands of white mice and rabbits, cats and dogs and into the testicles of guinea pigs. Control observations failed to disclose the presence of the same organism in the saliva and the parotid secretion of healthy persons.

AN INCREDIBLE SCANDAL.

In addition to the great amount of amusement and edification derived from the works of CHARLES DICKENS, it is a well known fact that several of his writings called attention so emphatically to various existing abuses that these errors in administration, or in habit, were speedily corrected. It is stated that HOOD'S "Song of the Shirt" did more toward relieving the condition of a certain class of sewing women than many years of charitable endeavor extended in other directions. It seems to us that Italy needs a CHARLES DICKENS or a THOMAS HOOD to call attention generally to the very extraordinary condition of affairs which a correspondent of the London *Lancet* asserts exists in the Foundling Hospital at Naples. This correspondent asserts that this particular institution is no worse than many other institutions of its kind established "in the great centers of population where the large celibate communities of both sexes accommodated in religious houses are the cause of illegitimacy on an enormous scale, the hapless offshoots of which find their way as foundlings into the city hospitals, where, if they are not killed outright, they can hardly be meant to live." It is stated that in the last two statistical years the foundlings admitted into this particular hospital of Naples amounted to 856, and their deaths at the close of these two years amounted to 853. It seems hardly credible that such a mortality could exist in any institution in the civilized world, and continue at such a shocking rate for a period of two years before any attention was paid to it. The fact that only three children out of 856 survived, finally caused the authorities to make a rigorous investigation of the management of the asylum, with results which are almost equally extraordinary with the death rate which we have spoken of. Not only were the dormitories filthy beyond description, but absolutely no provision had been made for the separation of children affected with contagious or infectious diseases from those who, while they were not affected by such disease, were in a hopeless condition of feebleness and neglect; that one wet-nurse was supposed to supply no less than four children each day, that there was no hot water in the building, that the baby linen was filthy and deficient and was very rarely washed. Milk obtained from cows and goats was never sterilized nor were the feeding bottles ever disinfected. In the case of a few children who, during the course of years, had survived this method of treatment, charges of insubordination were preferred against them as soon as they reached the age of seven and they were sent to Houses of Correction, thereby giving room for other foundlings, and at the same time compelling these young children to associate with thieves and other criminals. We would not have believed a year ago that any such condition of affairs could be found in existence in any country of the world, and we do not believe that any approach to it is to be found in the management of asylums of any kind by English-speaking communities; but this story, which reads like an account of hospital management in the twelfth century, is so extraordinary that we have thought it of sufficient interest to make an editorial note of it.

Let us have a Department of Public Health!

MEDICAL UNITY IN NEW YORK.

The medical profession in New York City has determined to make a united effort to correct the medical charity abuses, and for that purpose a joint committee composed of two representatives of each of the following societies have met and organized, viz.: The New York County Medical Association, the New York County Medical Society, the New York Medical League and the Society for the Advancement of Medical Practice. The committee will sit through the summer, prepare plans and data, appeal to all the medical societies of the State for sympathy and aid, and have ready for presentation to the Legislature when it convenes next winter a bill meeting with the approval of the entire medical profession. We are pleased to see such harmony exist, and believe that by the united efforts of the various medical bodies throughout the State, the crying abuses can and must be corrected. The bill offered last year obtained the unanimous support of Senate and Assembly and only failed becoming a law by the neglect of the Executive giving it sanction. Our best wishes are for the success of our brothers in New York, and we are sure that the whole profession in the Republic gives them its moral support.

CORRESPONDENCE.

The Treatment of Typhoid Fever.

CLEVELAND, July 8, 1897.

To the Editor:—The current issue of the JOURNAL contains a politely worded attack on the "Woodbridge Treatment" for typhoid fever, by John N. Upshur, M.D.

As Dr. Upshur confesses that he has no practical, and as the many inaccuracies in his allusions show that he has no theoretical, knowledge on the subject, his article ought perhaps to be passed unnoticed, but his high and numerous titles, and his assumption of a knowledge which he does not possess, justifies the application of the principle that "ignorance of the law gives no exemption from its penalties," I therefore ask you to accord me a little space in your already over-crowded columns to answer him, not on my own account, because these last years have rendered me callous to such mild sarcasms as flow so smoothly from the Doctor's facile pen; not because he has criticized the "Woodbridge method"—others have done as much—but because he has made an unjustifiable and unprofessional attack on many hundreds of members of the AMER-

ican Medical Association, as able, honest and honorable as himself, and whose only fault is that they have aborted typhoid fever and for the benefit of humanity have said so and have reported their cases.

It is not necessary, perhaps hardly proper, to call attention to the fallacies in the Doctor's paper, yet one can not help mentioning a few of them, *e. g.*, "The diet should be liquid. . . Milk is the best of all foods." Milk is a liquid outside of the body, but is it a liquid food in the stomach? "When the case has terminated the room should be thoroughly disinfected for at least two weeks before it is occupied and the furniture washed with a solution of bichlorid 1 to 1000." This is fairly good advice for two or three decades back, but insufficient and laborious. We live in an enlightened age now; we simply close up the room and send a stream of formaldehyde gas through the key hole and the next night use the room with safety as a surgical ward. "Such preparations as phenacetin, etc., may be used in small doses, but I deprecate most decidedly the use of the coal-tar derivatives at any stage of the disease." Does Dr. Upshur not know that phenacetin is one of the coal-tar derivatives? "Numerous drugs have been used with the object of abridging typhoid fever, but all clinical experience shows the effort to have been fruitless." "We have no evidence of proof given, except the bold assertions of success by himself and others, and the *testimonials are not worth any more than the testimonials given by hundreds to the so-called cancer cures and kidney cures et id omne genus.*" In one sentence Dr. Upshur shows his respect for clinical experience, coupling it, however, with a gross misrepresentation. In the other he designates the reports of cases of those who have succeeded with the abortive treatment and the opinions they have expressed regarding it—the highest expression of clinical experience—as testimonials and attaches the same value to those of the deluded victims of quacksalvers as to the clinical reports of educated physicians; and because these physicians cure so large a percentage of their cases and in so short a time that Dr. Upshur regards their results as marvelous, he condemns them as impossible and raises the hackneyed question of "errors of diagnosis." In comparing the clinical reports on the abortive treatment of typhoid fever to the "testimonials," generally of impecunious patients given to shameless quacks or patent medicine venders, is a gross insult to hundreds of the ablest and most honorable physicians in all parts of the United States and through them to the entire medical profession, and scarcely less insulting is his theory that all of the wonderful results of the method which he condemns are due to errors "of diagnosis." To accept this theory it would be necessary to believe that physicians who have been at the head of some of the largest hospitals in the United States—that hundreds of physicians who have won high repute and large practice, and many of them high official positions such as high rank on the Medical Staffs of the United States Army in Marine Hospital Service, etc., and have reported 7,857 cases of typhoid fever treated by the method I have advised, are incapable of making a correct diagnosis in one of the commonest and in its typical form, one of the easiest diseases to diagnosticate which they encounter; to believe that the physicians who adopt this method of managing the disease frequently in the midst of epidemics suddenly cease to meet with it; to believe that the hospitals in which the treatment is used acquire a like immunity, and that while in the same locality and during the same epidemics, physicians were treating typhoid with the ordinary death rate and duration of illness—these hospitals were receiving and these physicians were treating these 7,857 cases of a disease which was being mistaken for and presenting pathognomonic symptoms of typhoid fever with a death rate of 1.90 per cent. and an average duration of illness of 12.7 days of those that recovered; that the patient whose temperature dropped rapidly to 99 degrees and afterward died of intussusception, the necroscopy revealing extensive ulceration of Peyer's glands, was an "error of diagnosis;" the patient in whom the treatment was instituted and the temperature dropped from 104.8 to 99.7 on the fourth day and to normal on the tenth, the pulse in the meantime dropping from 96 to 76, the treatment having been previously discontinued, a relapse and death followed and the necropsy showed ulceration of Peyer's glands and intestinal perforation—an "error of diagnosis:" Diazo reaction positive—Widal's test of reaction of serum on Eberth's bacilli characteristic of typhoid fever—disease aborted "errors of diagnosis." Is Dr. Upshur himself credulous enough to believe all these absurdities?

Aside from the small doses of phenacetin, the use of which is always reprehensible, the recommendations in this remarkable paper are in consonance with the procedures in vogue during most of the passing century; indeed the one remedy from the use of which the Doctor says he has seen marvelous benefit, was recommended and used during the last century in "typhus mitior"—not necessarily a condemnation. It is fair, therefore, to presume that his death rate (a subject upon which he is discreetly silent) is the ordinary 15 to 20 per cent., and his average duration of illness from four to six weeks. He is then to be commended for his unwillingness to "subject his patients to such experimentation" (as the Woodbridge treatment)!

Finally, Dr. Upshur is to be congratulated on his desire for "convincing proof of the brilliant results claimed," a wish which I promise to gratify if he will come to me, and I pledge myself that he shall be able "to approach the treatment of *his* cases of typhoid fever with the assurance of its harmless nature and certainty of cure." I am, my dear editor,

Your most obedient servant,

John Eliot Woodbridge, M.D.

"Life Insurance Fees for Medical Touts."

Hartford, Conn., July 8, 1897.

To the Editor:—Your edition of July 3 contains an editorial entitled "Life Insurance Fees for Medical Touts," which is in its initial statements so obviously unfair to the great majority of life insurance companies, as well as to the medical profession at large, that I beg leave to offer a remonstrance. You begin by saying, "for at least a half a century the American medical profession has been conscious of the great injustice done in the matter of fees for life insurance examinations." Now, I have been a practicing physician and life insurance medical examiner for thirty-one years, and for nearly half that time also the medical director of a large life insurance company. As the examiner of several companies I received, during the early part of my career, $3, and for the latter years $5, for each examination made, and when microscopic examination was called for I was paid from $3 to $5 additional. During all this time I have near heard any objection made by physicians, nor have I felt myself that these fees were unjust. In the days before uranalysis was so universally required, $3 was regarded as good compensation for the twenty-minute or half-hour examination made. Some years later a fee of $5 was allowed in cities and when chemic uranalysis became a general requirement the fee was advanced to $5 in most instances, both in the city and country alike, with an addition for using the microscope. The company with which I am connected (the Connecticut Mutual Life Insurance Company of Hartford) has several thousand examiners, and I do not recall a single instance in which there has been an expression of dissatisfaction with the fees we pay; nor could such a claim be put forward with any degree of fairness. The time and professional ability requisite for this work is as well paid for as in any other branch of medical service. Still more conclusive evidence is found in the fact that fee tables adopted by our medical societies in no

instance, so far as my knowledge goes, calls for or suggests even a fee in excess of the amounts named above. Surely this would appear to be a strange way of manifesting to the world a life-long consciousness of great injustice.

Again, you say, "of late this feeling has been intensified by the wanton reduction of fees to medical examiners, while at the same time the salaries of presidents were increased by thousands." It is true, I believe, that one or two companies have reduced somewhat their fees, or made a graded scale of fees, within the past year or two, but no such action has been taken by the great majority of companies. Of course I am speaking of the old line life insurance companies and do not refer to assessment or society insurance at all. The Connecticut Mutual Life Insurance Company and the great majority of similar companies still pay a $5 fee, which has been and is accepted by our examiners as adequate and just. There can be no question, however, that an abundant corps of competent medical examiners can be found in all parts of the United States who are not only willing but anxious to make life insurance examinations for the old fee of $3, including chemic analysis of the urine, and our industrial companies inform me that they find little difficulty in securing competent service at a much lower cost to them. This illustrates the willingness of a large part of the practitioners in this country to perform such service for a fee much less than that generally paid by life insurance companies.

Continuing, you say, "while life insurance companies do not appreciate physicians highly in their proper functions as medical men, etc." Once more I must take exception to your statement. Nowhere is the service of a skilful and conscientious physician valued more highly than in an insurance office. The whole institution of life insurance rests upon the medical estimate of the individual applicant. The amount of money annually expended by life companies to secure competent examiners and to weed out those who are unreliable is very large, and is made necessary by the recognition on the company's part that the very best medical advice must be secured if a safe and stable business is to be transacted. In view of the great number of applicants for the position of examiner, and the high appreciation by the company of what is requisite in an examiner, any physician is surely to consider himself complimented when he is requested to occupy the position.

Criticise, if you please, business methods like those you mention in your editorial, but do not make it appear that the profession is being imposed upon or that life insurance companies are unmindful of the high service performed by their examiners, for this is surely unfair to both parties alike.

Regarding the employment of physicians as agents I care to say nothing beyond this: Should it come to our knowledge that one of our medical examiners was receiving fees from any of our agents for services as solicitor, I should consider the cancellation of his certificate as medical examiner an imperative duty. Very respectfully yours.

GEORGE R. SHEPHERD, M.D., Medical Director.

Color and Finish of Paper for Bookmaking.

SAN JOSE, CAL., July 8, 1897.

To the Editor:—Since I penned a few thoughts in the April 24 issue of the JOURNAL, on the subject of glossy paper for periodical and bookmaking purposes, I have been thinking more on the subject, and the more I think the more I am convinced that the matter needs thorough agitation all round. If one will call to mind the large number of periodicals and books now printed on paper of high glossy finish he will conclude that this style of paper is becoming a "fad."

A journal published in St. Louis entitled *The American Medical Journalist*, notices my former article and makes the following comments: "Dr. Simonton of San José, Cal., objects to the high finish of the paper upon which the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION is being printed, and claims that the 'gloss,' as he terms it, is injurious to the eye, and suggests that the paper should have a dead white finish. The paper used upon the JOURNAL is what is known as an S. and S.C. (Sized and Super-Calendered) book, and is the best quality for periodicals of that character, giving life to the letter-press and affording an opportunity to use half-tone engravings without inserting special sheets for the purpose. If the quality of the paper is reduced, it would be at the expense of the appearance, and illustrations would necessarily have to be printed on separate sheets."

Well may the publishers of the *American Medical Journalist* come to the rescue in defence of glossy paper for periodicals, since the paper on which that particular journal is printed is of such smooth finish that a fly should not venture to light upon it without its life was insured. The paper of this journal is certainly "calendered" in the highest degree of the art.

The editor says that this highly calendered paper "gives life to the letter-press and affords an opportunity to use half-tone engravings without inserting special sheets." I submit that the issue of his journal (June, 1897) in which the words of the last quotation are printed, presents positive evidence that such high finished paper does not receive the ink readily and uniformly from the type. On the contrary, the letter-press is bad.

It stands to reason that paper of highly glossy finish can not take the impression from the type so readily and perfectly as paper of a softer finish.

And it is the half-toned engraving that is leading to this highly calendered paper "fad"; is it?

Must human eyes be sacrificed in order that it may be convenient for the printer to insert half-tone engravings on any page of periodical or book? Give us "quarter-tone" engravings or none at all, rather than to put unnecessary demands on human vision, in this high civilization, which is trying to the utmost the useful organs of sight.

Should the printers of periodicals and books consult their own convenience rather than the convenience, comfort and welfare of those who use and furnish market for their product?

Take up one of these "highly polished" journals and hold it before even a diffused light from a window, so that the rays of reflection reach the eye and it will be found almost if not quite impossible to read the print. Before the direct light of a lamp the difficulty is increased. And at any angle the light reaching the eye from the glossy surface is much greater than from one that is dead white.

For comparison take up the *Forum*, which is printed on paper of proper texture and color. Place this magazine in same positions as you have the "polished" journal and observe the difference and comfort to the eye.

I observe that the imprint of letters on the pages of the *Forum* is perfect, being a positive refutation of the statement that paper of high gloss gives the best letter-press.

A very large number of periodicals and books are now being printed on highly calendered paper and I suppose for the reasons that engravings make a better impression on same, but for reasons which I have set forth the practice should be condemned on all occasions.

All periodicals and books should be printed on a dead surfaced, slightly cream-tinted paper.

A. C. SIMONTON, M.D.

Sterilization of Catgut.

PHILADELPHIA, PA., July 5, 1897.

To the Editor:—Some time about the first of this year an article was published on the sterilization of catgut by treating it with formalin. I am not sure that it was published in your JOURNAL—will you kindly look it up and let me know if I can secure a copy of the magazine containing it, provided you published it?

GASTON TORRANCE, M.D.
Polyclinic Hospital.

ANSWER: See JOURNAL of Dec. 12, 1896, p. 1219.

Fracture of Skull, Rupture of Meningeal Artery. Ligation of Common Carotid, Recovery.

ATHENS, ILL., July 10, 1897.

To the Editor:—Believing the following case would be of interest to the readers of the JOURNAL, I will report it as briefly as possible:

On Wednesday, April 15, 1897, I was called to see T. J. S., carpenter by occupation, age 28, American, and found him lying on the bed profoundly unconscious, pulse 40, breathing stertorous, right pupil dilated, and obtained the following history: Some four hours previously while engaged in building a barn a piece of timber, oak 2 x 8 inches, 11 feet in length, fell from upper part of barn frame while being placed in position by an assistant and dropped a distance of eight or ten feet, striking S. on the top of the head, felling him to the ground, but did not produce immediate unconsciousness. At time of accident he wore a very thick cap on his head, which probably explained absence of external evidence of injury, as close examination of head failed to reveal anything more than a small dis colored spot at the point of injury. After receiving the injury he mounted his horse and rode to his home distant about two miles and gave his wife an intelligent account of the accident and requested that the family physician be called. Unconsciousness developed slowly and at expiration of four hours after injury had become profound. I diagnosed fracture of skull with compression of brain and asked for surgical consultation.

Dr. J. A. Prince of Springfield, Ill., saw the case with me and concurred in the opinion expressed, and operation was decided upon, which was performed a few hours later, the patient not showing the slightest evidence of improvement in any way, having lost control of sphincter muscles and having involuntary passages from bowels and bladder.

Incision was made through soft tissues of the scalp down to the skull at the point of injury, and fracture of right parietal bone near superior border was found extending downward and forward considerable distance but no depression of bone. On removal of section of bone with trephine a very firm blood clot presented in the opening, which was enlarged with bone cutting forceps, and clot removed, after which hemorrhage from the middle meningeal artery was very profuse. Packing the opening with gauze, firm pressure and compression failed to control the bleeding. To accomplish this purpose we decided, after giving other methods a fair trial to ligate the right common carotid artery, which was performed in the usual way, the vessel being tied with a double silk ligature, the result was all that could be desired and the operation was concluded in the usual manner and patient put to bed. In a few hours consciousness returned, the pupillary inequality disappeared and the patient made an uneventful recovery, and at this time, now almost three months after operation, expresses himself as being as well in every way as he ever was in his life; he is going about as usual and expects to resume work at his trade at once.

A. L. BRITTIN, M.D.

An Open Letter.

IOWA CITY, IOWA, July 5, 1897.

To the Medical Profession, Members of the Legislature and Citizens of Iowa:

You are doubtless aware that the Board of Regents of the University of the State of Iowa have appropriated nearly $150,000 for the construction and equipment of an hospital to be an adjunct to the Medical Department of the University.

This hospital has been planned to possess the greatest amount of facility for medical and surgical work possible in the present state of science; and, under proper restrictions, it might become a source of great benefit to the needy and indigent requiring medical or surgical treatment.

But the best information accessible indicates that the use and control of the hospital is to be *restricted* to members of the Faculty of the Medical Department of the State University, and that the practical working of the hospital is to be largely under the control of non-resident members of the faculty.

We are also informed that while it is the intention of those in authority to admit the poor, if funds for their board be guaranteed by friends, or by the county from which they come, the well-to-do are to be received and afforded advantages superior to those that can be given by local physicians and surgeons, or by local hospitals or sanitariums, provided they pay their board and reasonable charges to the physician or surgeon in charge.

Thus the State, in behalf of a few individuals connected with the Faculty of the Medical Department of the University, enters into competition with every general practitioner, and every hospital and sanitarium in the State; also offering to furnish a set of operating rooms, and all special appliances, to the members of the staff without expense to them; thereby giving them great advantages in competition with the large body of the medical profession, who have no such extraneous aid.

We call your attention to this matter in the hope that you may aid in obtaining from the legislature such enactments as will secure the enforcement of the following rules; without which, in our belief, the hospital should receive no help from the State or the medical profession:

1. That no patient shall be admitted to the hospital or receive treatment therein who is able to pay, or possesses sufficient means to pay for his or her treatment at home, or in a private institution.

2. That no physician or surgeon, a member of such hospital staff, shall receive any compensation for service in such hospital, or receive any pay or gratuity from any patient admitted to such hospital.

It is our belief that the adoption of such rules would in no way lessen the opportunity for good of a State hospital, and could in no way interfere with the *legitimate* work of the members of its staff.

Respectfully submitted,

ELMER F. CLAPP, M.D., Iowa City, Iowa.
C. M. HOBBY, M.D., Iowa City, Iowa.

A Query.

FORT YATES, N. DAK., July 7, 1897.

To the Editor:—Would you kindly give the formula and method of using Schleich's fluid for anesthesia, and as full particulars as possible of Maragliano's serum, in your next issue? Yours very faithfully,

JAMES W. BAIRD, M.D.

ANSWER: See THE JOURNAL, Dec. 29, 1894, p. 965, for Dr. Würdemann's article on Schleich's method, and THE JOURNAL, Nov. 21, 1896, p. 1105, for an abstract of an article on Maragliano's serum.

BOOK NOTICES.

Manuali Hoepli. Soccorsi d'Urgenza. Pel DOTTORE CARLO CALLIANO. Milano: Ulrico Hoepli. 1897. (Aid in Emergencies.) 4ta edizione.

La Morte Vera e la Morte Apparente. Con Appendice "La Legislatura Mortuaria." Pel DOTTORE FELICE DELL'ACQUA. (Real and Apparent Death, with Appendix, Mortuary Legislation.) Milano: Ulrico Hoepli. 1897.

The first of these two little volumes of the extensive and comprehensive Hoepli series, is a work that has received the approval of the Italian sanitary authorities and has passed through four editions, which facts ought to be an index to its worth. On examination the favorable presumption is con-

firmed; it is a very complete and thorough manual, covering rather a wider field than some of the other numerous publications on the subject, and seemingly very well suited to be utilized as a text-book for ambulance attendants, nurses and others who have to do with the class of cases of which it treats. Its compass will be better understood if it is stated that it gives the elementary facts of anatomy and physiology, the resources available for the immediate treatment of nearly or quite all accidents, poisoning and sudden ailments, the signs of death and the care of the dead, disinfection and asepsis, invalid diet, etc. It concludes with a very satisfactory index, and a number of plates illustrating anatomy, stoppage of hemorrhage, bandaging, transportation of the sick or wounded, etc. If it were only in English it would have our warmest recommendation to American readers.

The second volume gives apparently a very fair statement of the facts as to recognition of real and apparent death, with the Italian law of 1891 in regard to burial and mortuary dispositions generally.

Life of Thomas Wakley, Founder of the first edition of the *Lancet*, Member of Parliament for Finsbury and Coroner for West Middlesex. By S. SQUIRE SPRIGGE, with two portraits. Pages 509. London, New York and Bombay: Longmans, Green & Co. 1897.

We have here the biography of one of the most interesting members the medical profession has produced in Great Britain during the present century. If we consider his pugnacity we must admire the results which he accomplished by it. If we consider him an uncomfortable person to be in controversy with, we must at the same time admit his energy, his faithfulness in the pursuit of right, his great industry, and withal his ready grasp of the spirit of the times.

Wakley was a born reformer. Reformers although followed by many are usually loved by few, for they must run counter to the prejudices of the times, the sentiments of individuals and the customs of the country.

One marvels how it is possible for one individual to have accomplished so much work and at the same time it must be admitted, that done by Wakley was done well. As the editor of a great newspaper he was incomparable, as Member of Parliament for Finsbury, he was always ready with some interrogatory to embarras the party in power and to advance the liberal cause and interest of his constituents. As coroner for Middlesex his career was marked by ability, industry, patience, courtesy, integrity and uncommon learning. These three occupations he carried on at one and the same time.

The career of Wakley is of great interest to every medical man and we commend the perusal of this biography especially to the young medical student, who views with concern the long and rocky road between himself and the goal of his ambition. As for Wakley himself, notwithstanding his success in the House of Parliament and the reforms which he successfully instituted as coroner for Middlesex his best monument is that wonderful medical newspaper which we welcome under the name of the London *Lancet*.

Medical and Surgical Report of the Presbyterian Hospital in the City of New York. Vol. 2, January 1897. Edited by ANDREW J. MCCOSH, M.D., and WALTER JAMES, M.D.

This volume contains besides the list of officers, managers, medical board, house staff, house officers the papers on various subjects by the staff of the hospital.

In medicine we have W. Gilman Thompson, Tilden Brown, W. P. Northrup, J. T. Thornley, Francis Kinnicott, and in surgery we have papers by Charles K. Briddon, Forbes Hauks, E. Elliott, and A. J. McCosh.

The volume opens with a well considered paper on cholelithiasis and surgery of the bile ducts by Dr. Briddon. Four cases are reported with analysis.

Gilman Thompson reports on cold tub bathing for typhoid fever and concludes that the cold tub bathing does not ordinarily shorten the duration of the fever. That it does not prevent an occurrence of at least as many relapses that may take place without it. It does not prevent the occurrence of many of the complicated cases to the disease, most of which however are less severe than those that are often presented without it. It does not in any manner preclude simultaneous use of the internal antiseptic or any other recognized methods of treatment.

It is a rational plan of treatment directed toward the support of the nervous system by the double stimulus and as such it is practically useful in preventing those symptoms which result from the overwhelming of the nervous system by the toxin of the disease.

When patients come under the tubbing treatment within the first week of illness it offers the almost certain prospect of the disease running a mild course and it reduces a mortality of many of the severer cases by approximately one-half. These conclusions were based on the study of 284 cases received in six years of treatment, with the total mortality under all forms of treatment of 14.79 per cent.

The paper on renal tuberculosis by Tilden Brown is a careful study.

Transactions of the Southern Surgical and Gynecological Association. Vol. IX. Ninth session, held at Nashville, Tenn., Nov. 10, 11 and 12, 1895. Published by the Association. 1897.

This session was held under the presidency of Dr. E. S. Lewis, and was marked by harmony in its methods and enthusiasm in the professional work before it. Forty members were present.

The volume presents the same handsome appearance as its predecessors and it is on the same high plane. It contains the minutes of the session and all the papers read, with the discussions thereon.

The next meeting of the Association will be held in St. Louis, under the presidency of Dr. George Ben. Johnson of Richmond.

V 29
1897

NEW INSTRUMENTS.

A SET OF NEW CURETTES FOR OPERATING IN THE NASO-PHARYNGEAL VAULT.

BY HENRY W. WANDLESS, M.D.

CONSULTING OCULIST AND AURIST, PARKLAND CITY HOSTITAL; CHIEF SURGEON DALLAS CHARITABLE EYE, EAR, NOSE AND THROAT INFIRMARY, DALLAS, TEXAS.

The cuts given herewith represent a set of curettes which I have devised for operating in the vault of the pharynx. They are specially designed for the removal of adenoids from the vault, granulations, and for curetting the mucous membrane in order to stimulate it to healthy functional activity. These curettes are made in pairs of which there are two. Each pair is composed of two sizes for large and small vaults and is designed for special conditions and localities which are described with each. It has been found that these curettes meet practically all the requirements in operating upon adenoids within the vault, except tumors that are too large to pass within the ring of the curette. Fig. 1 represents the first pair, which is adapted to the posterior walls of the vault only. It does not reach the roof of the vault, because the blade is not set on an angle for the roof. It is intended for this curette to have as near the same curve of the vault as possible, and when it sweeps over the walls it always conforms to the shape of the vault. When introduced the tumors pass within the ring of the curette and are cut off as the curette is made to sweep over the posterior walls. When the tumors have become hard as they often do, especially from age, considerable force is necessary to sever them from their attachment; and in such cases this is the only instrument with which I have had satisfactory success. This curette is not adapted for the removal of tumors

in the roof of the vault, because it is impossible to get a curette to conform to the curves of both the roof and the posterior walls. For that purpose I have designed a second pair shown in Fig. 2. This curette may be used for general use, and all adenoids may be removed with it except those that have become hard. It will be observed that the cutting edge of this instrument is set at an angle of about 45 degrees from the handle and when introduced its edge strikes the mucous membrane on its posterior walls at about the same angle; but if the curette is pushed far up and the ring brought well forward against the post-nasal septum at the same time lowering the handle, the blade rests flat against the roof and as the sweep is made over the vault the curette engages the tumors within its rings and brings them away.

Figure 1.

Any instrument which is not so adapted fails in its purpose to remove the tumors from the roof and simply scrapes those from the posterior walls. It is well to add here that the tumors in the roof around the post-nasal nares do considerably more damage than those on the posterior walls, and it is therefore much more important to remove them. Tumors within the posterior nares can not be reached with these curettes and are best removed with a Bosworth snare. I claim considerable excellence for these curettes, not because they bear my name but because of my practical experience in operating with them, which has been very satisfactory.

Figure 2.

For removing granulations from the vault and stimulating the mucous membrane, I only use the second pair, Fig 2. The granulations come away readily with moderate force and without much injury to the membrane.

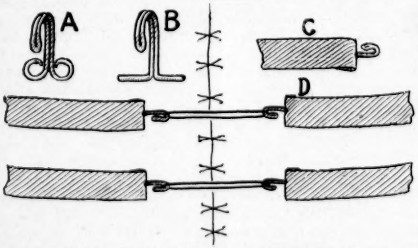
For stimulating the membrane in cases of chronic naso-pharyngeal catarrh I have used this curette with very happy results.

The curettes are made by Chas. Truax, Green & Co., Chicago, Ill.

TENSION ADHESIVE STRAPS.

BY E. H. KING, M.D., MUSCATINE, IOWA.

The greatest objection to the use of adhesive straps over wounds arises mainly from a collection of crusts or dried secretion under them, and from the difficulty of inspecting and

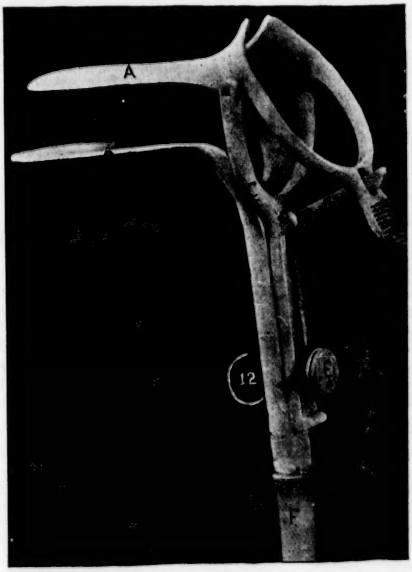


changing the underlying dressings. This difficulty can be easily remedied by taking common dress hooks, A, bend the circular parts of the shank at a right angle, B, and fix them on the end of an inch strap of Meads, a similar adhesive plaster, C. The straps with the hooked ends may be placed one inch or more from the border of the wound, D, on either side and tension made with small rubber bands over any desired dressing, which will thus be comfortably retained in place. By unhooking the bands, the dressing may be removed without disturbing the straps, wound or patient. These hooks thus made were originated by me. I have used them over twenty years with satisfaction. There is no patent on them and the profession is welcome to the idea.

A VAGINAL SPECULUM.

BY G. R. FOX, M.D., PLAQUEMINE, LA.

I present herewith a photograph of a vaginal speculum which I have recently invented. The instrument is similar to Graves' in the mechanism for the vertical expansion of the blades, but has the following improved features. Instead of the screw used in most similar instruments to keep the distal ends of the blades expanded, I have adopted a ratchet and pawl mechanism, which permits the operator to expose the cervix uteri very quickly, and adjust the instrument with one hand, and to release the blades as quickly when he desires to remove the instrument.



Another improvement is a funnel shaped opening at the rear portion of the lower blade leading into a hollow shank on same, to which a piece of rubber tubing is affixed, thus providing a ready outlet for fluids while using the speculum.

The instrument is aseptible, and the lower blade can be detached and used as a Sims speculum.

Automatic Adjusting Thermometer.—The strain and inconvenience of the ordinary thermometer in severe prostration is avoided by the contrivance of Prof. Cornet, which holds the thermometer automatically in the armpit, by means of a broad spring which passes over the shoulder. The thermometer is curved to fit and can be read without removing.—*Deutsche med. Woch.*, June 3.

ASSOCIATION NEWS.

Competition for the Senn Medal.—Pursuant to a resolution adopted by the Section of Surgery and Anatomy of the AMERICAN MEDICAL ASSOCIATION, June 4, 1897, I have been appointed by the Chairman, Dr. Reginald H. Sayre, as Chairman of the Committee charged with the awarding of the Senn Medal for 1898. The other members of the Committee are Drs. H. O. Walker of Detroit, Mich., and S. H. Weeks of Portland, Me.

1. A gold medal of suitable design is to be conferred upon the member of the AMERICAN MEDICAL ASSOCIATION who shall present the best essay upon some surgical subject.

2. This medal will be known as the Nicholas Senn Prize Medal.

3. The award shall be made under the following conditions: *a.* The name of the author of each competing essay shall be enclosed in a sealed envelope bearing a suitable motto or device, the essay itself bearing the same motto or device. The title of the successful essay and the motto or device to be read at the meeting at which the award is made, and the corresponding envelope to be then and there opened and the name of the successful author announced. *b.* All successful essays become the property of the ASSOCIATION. *c.* The medal shall be conferred and honorable mention made of the two other essays considered worthy of this distinction, at a general meeting of the ASSOCIATION. *d.* The competition is to be confined to those who at the time of entering the competition, as well as at the time of conferring the medal, shall be members of the AMERICAN MEDICAL ASSOCIATION. *e.* The competition for the medal will be closed three months before the next annual meeting of the AMERICAN MEDICAL ASSOCIATION, and no essays will be received after March 1, 1898.

Competitors will address their essays to the undersigned.

J. MCFADDEN GASTON, M.D., Chairman.

1½ Edgewood Ave., Atlanta, Ga.

SOCIETY NEWS.

Twelfth International Medical Congress.—The President and Secretary have issued the following circular under date of June 13 (old style) presidents of important medical societies:

Dear Sir:—His Majesty the Emperor of Russia has given authority to hold at Moscow, on the 19th to the 26th of August, 1897, the Twelfth International Medical Congress, and has deigned to take it under his august protection. Desiring to assure to this great reunion, learned men of the highest character, and that the international character of the meeting shall be marked, the Executive Committee has addressed itself to the most important scientific societies of the world and begs that they will send representatives to the said Congress. The Committee hopes that the honorable society of which you are the president will not refuse to contribute to the *éclat* of the next scientific *fête* of Moscow, by sending delegates, to whom it will be happy to accord the highest consideration. Accept, dear Sir, assurances of the highest consideration.

J. F. KLEIN, President.

S. S. KORSAKOW, for the Secretary General.

The following have had credentials issued for Moscow by the AMERICAN MEDICAL ASSOCIATION:

Drs. L. Ashton, Dallas, Tex.; Frank Billings, Chicago; W. G. A. Bonwill, Philadelphia; D. R. Brower, Chicago; Augustus P. Clarke, Cambridge, Mass.; Judson Daland, Philadelphia; Charles Denison, Denver, Colo.; Henry B. Favill, Chicago; Thos. H. Fenton, Philadelphia; Geo. Ryerson Fowler, Brooklyn, N. Y.; Wm. H. Forwood, U. S. A.; Jacob Frank, Chicago; Henry Gradle, Chicago; Alex. J. Campbell, Syracuse, N. Y.; J. R. Hildreth, Cambridge, Mass.; Chas. H. Hughes, St. Louis, Mo.; Florence W. Hunt, Chicago; H. L. E. Johnston, Washington, D. C.; Wm. D. Kelly, St. Paul, Minn.; J. O. Knipe, Norristown, Pa.; O. Litzenberger, Converse, Ind.; T. Mortimer Lloyd, Brooklyn, N.Y.; Thos. McDavitt, St. Paul, Minn.; Harold N. Moyer, Chicago; J. O. Malsbury, Peru, Ind.; F. S. Milbury, Brooklyn, N. Y.; Thos. H. Manley, New York; Abner M. Miller, Bird in Hand, Pa.; John H. Packard, Philadelphia, Pa.; Theophilus Parvin, Philadelphia, Pa.; Geo. M. Preston, Lynchburg, Va.; Nicholas Senn, Chicago; Catherine Slater, Chicago; Edmund H. Stevens, Cambridge, Mass.; Eugene S. Talbot, Chicago; Fred C. Valentine, New York; J. Henry Woods, Brookline, Mass.

The following party sailed from New York, Saturday, July 3, 1897, by the North German Lloyd Express Steamship *Werra*:

Dr. Catherine Slater, Aurora, Ill.; Miss M. Costigan, Chicago, Ill.; Miss Isabel McIsaacs, Chicago, Ill.; Dr. Harriet E. Garrison, Dixon, Ill.; Dr. I. N. Wear, Fargo, N. Dak.; Dr. A. E. Abrams, Hartford, Conn.; Mrs. Abrams, Hartford, Conn.; Mr. D. A. Bishop, Jersey City, N. J.; Mrs. Bishop, Jersey City, N. J.; Miss Bishop, Jersey City, N. J.; Dr. W. H. A. Bonwill, Philadelphia, Pa.; Miss E. Lincoln, Providence, R. I.; Miss Anne L. Gorman, Providence, R. I.; Mrs. Lillian Condell, St. Louis, Mo.; Miss Grace Reynolds, Sugar Hill, Ill.; Dr. B. T. Whitmore, Chicago, Ill.; Dr. Jas. G. Hyndman, Cincinnati, Ohio; Mrs. Hyndman, Cincinnati, Ohio; Dr. F. B. Galbraith, Pontiac, Mich.; Mr. Galbraith, Jr., Pontiac, Mich.; Dr. W. F. Southard, San Francisco, Cal.; Dr. W. F. Forwood, Washington, D. C.; Mr. N. B. Scott, Wheeling, W. Va.; Mrs. Scott, Wheeling, W. Va.; Mr. Jos. Stone Perry, Worcester, Mass.; Mrs. Perry, Worcester, Mass.; Miss Josephine Perry, Worcester, Mass.

The following comprise the Athens and Constantinople section on the same vessel:

Dr. J. H. Woods, Brookline, Mass.; Dr. George Ryerson Fowler, Brooklyn, N. Y.; Mrs. Fowler, Brooklyn, N. Y.; Dr. T. N. Lloyd, Brooklyn, N. Y.; Dr. Daniel R. Brower, Chicago, Ill.; Dr. D. R. Brower, Jr., Chicago, Ill.; Dr. Nicholas Senn, Chicago, Ill.; Dr. W. N. Senn, Chicago, Ill.; Dr. Eugene S. Talbot, Chicago, Ill.; Dr. Lucy Waite, Chicago, Ill.; Dr. Casey A. Wood, Chicago, Ill.; Mrs. Wood, Chicago, Ill.; Dr. Edward K. Root, Hartford, Conn., together with Mrs. Fowler, Brooklyn, N. Y., and Mrs. Wood, Hartford, Conn.

LARYNGOLOGICAL SECTION INTERNATIONAL CONGRESS.

At a special meeting of the Oto-Rhino-Laryngological Society of Moscow, held June 21, 1897, it was decided that a "bureau" should be instituted for the convenience of members of the Twelfth Section of the Twelfth International Medical Congress (Otological and Rhino-Laryngological Section). The object of this bureau will be to give all information needed, not only as to matters concerning the Congress, but as to all other matters where our visitors may require assistance or information. This reference-bureau will be open from 7 to 9 P. M., from the 13th to the 19th day of August, in the Doctors' Club (Bolshay Dmitroffka), and during the meetings in the room of the Section XII b. (Laryngo-Rhinology). I. N. SCOTT, President.

ARRANGEMENTS FOR THE CONGRESS.

Transportation free of charge in first-class carriages from the Russian frontier to Moscow. Half-rate tickets will be issued to members of the Congress by the French, Italian, Spanish, Swedish and Norwegian, and Oriental railways, but not by the German roads. Reductions in fare are offered by many European steamships, but not by the transatlantic companies.

Foreigners must be provided with passports, properly *viséd* by a Russian Consul in the country to which they belong. The passports will be inspected at the frontier. Committees of Russian delegates will be present at the frontier stations to supply information and assistance, and there will also be committees at the Moscow railway stations, as well as offices, where information with regard to lodgings, etc., may be obtained. If physicians take their wives, or other members of their family, they will have to pay full railroad fares for them, but a committee of women, presided over by Mme. Sklifossovsky, will look after the ladies that go to the Congress and see that they have a good time. Rooms can be had at from $1 to $3 a day, with morning and evening coffee, and dinners in good Moscow restaurants cost from 40 cents to $2. A buffet will be opened in the building where the Congress meets, in which meals may be had at very low prices.

Physicians intending to be present must apply to the treasurer, Prof. N. Filatow, Moscow, for tickets of membership, inclosing 10 rubles or $4. The tickets will serve to identify

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them and will entitle them to take part in all the meetings and excursions and also to all the publications of the Congress. Scientific men, veterinary surgeons, pharmacists and dentists may also obtain tickets, as extraordinary members, but no mere students of medicine can attend in any save their private capacity.

The Congress, which is held under the patronage of the Czar and the Grand Duke Sergius, opens August 19 (August 7 according to the Russian calendar) and closes August 26 (14). Railroad tickets are good from July 1 to October 10, and thirty-five pounds of baggage may be carried free. Several excursions are being arranged for the benefit of members of the Congress, to the monastery of St. Sergius, to Nijni Novgorod, to the Crimea and to the Caucasus. Communications should be sent to the General Secretary, Clinic for Nervous Diseases, Moscow.

American Association of Obstetricians and Gynecologists.—The American Association of Obstetricians and Gynecologists will hold its tenth annual meeting at the Cataract House, Niagara Falls, Tuesday, Wednesday, Thursday and Friday, Aug. 17, 18, 19 and 20, 1897, under the presidency of Dr. James F. W. Ross of Toronto. The railways have granted reduced fares on the certificate plan to all who attend the meeting; the Cataract House has made a reduction from its regular tariff of charges; the place of meeting is a famous one; the season of the year auspicious, and everything seems to conspire to justify a prediction that this will be a large and interesting meeting of this famous Association. The date of the meeting has been fixed in mid-August, apart from college sessions, during the vacation season and at a place where many people like to spend a part of their outing. The climate of Niagara is always desirable during the heated term, the spray from the cataract giving it a healthy moisture and coolness that is at once invigorating and charming. To visit Niagara under the auspices of this Association will afford the tourists exceptional opportunities for the enjoyment of a rare and radiant scenery that is the most sublime in the world. One session will be devoted to the exhibition of specimens and giving their history. The scientific work of the Association will begin on Tuesday morning at 10 o'clock and end Friday at 1 o'clock, and it is expected to so arrange the program as to afford the members opportunity to visit the places of interest each day on the adjournment of the afternoon session. It is expected that the inducements to attend this meeting are such that Fellows will not only come themselves but bring their families and invite their friends as as well to visit the wondrous cataract.

PUBLIC HEALTH.

Medical Inspection of Chicago Schools.—Incited thereto by the publication of the results of the first year's medical inspection of schools—first undertaken in this country by the Boston Board of Health under the supervision of Dr. S. H. Durgin, the able and energetic executive of that board—an appeal was made to the Chicago City Council in the spring of 1896 for an appropriation to defray the expenses of a similar inspection of the public and parochial schools of the city. "Financial stress" dictated the refusal of the appeal; but the Assistant Commissioner, Dr. F. W. Reilly, was so much impressed with Dr. Durgin's showing that eight of the ten medical inspectors of the department were relieved from all other duty at the end of August, 1896, and assigned to this special work for the ensuing school year—Sept. 3, 1896, to June 30, 1897. Dr. Reilly thus sums up the work accomplished with this small force:

The public and parochial school attendance during the period aggregated upward of 272,000—about 208,000 enrolled in public schools and nearly 65,000 in parochial schools. These occupied 572 separate buildings—234 city public schools, 131 branch and rented public schools and 207 parochial schools. Regular systematic inspections of each school building were obviously out of the question with the force at hand, and the work of the inspectors was therefore based upon physicians' notifications of cases of contagious and infective diseases occurring in their practice. Day by day each medical inspector was notified of the existence and the locality of every such reported case in his district, whereupon he proceeded at once to ascertain if the patient had been in attendance at any school; if not, his duties terminated with seeing that the case was properly isolated and the necessary precautions against spread of the contagion or infection on the premises and in the neighborhood were duly observed. If, on the other hand, the patient had been attending school the school was at once visited and taken charge of by the inspector so far as relates to carrying out and enforcing precautionary measures against further spread of the disease, to the remedy of insanitary conditions on the school premises, etc. In cases of diphtheria and scarlatina the throats of the children in the same room as the patient were examined after the method of Dr. Durgin; the teacher was instructed to watch for certain symptoms and to report their appearance to the inspector, and other appropriate actions were taken and surveillance maintained as long as deemed necessary.

During February, March and April the work was interfered with by various emergencies—for example, in February every available attaché of the department was engaged in looking up, reporting and relieving cases of distress and destitution among the unemployed and in the administration of the Mayor's relief fund. Nevertheless, a total of 1,181 visits were made to the schools during the school year; 4,023 cases of contagious and infective diseases were located and taken charge of for preventive purposes; insanitary conditions in 63 public schools were reported to the Board of Education and similar conditions were remedied in 53 homes of patients.

An important feature of the work was the examination, as to vaccinal status, of the pupils of schools visited. Nine hundred and fourteen such school examinations were made, covering a total of 90,220 scholars, 81,810 in public and 27,410 in parochial schools. Through these examinations 47,310 vaccination or revaccinations were secured, 37,470 of public scholars and 9,840 of parochial scholars.

Of the diseases reported diphtheria was the most prevalent; 744 individual reports of cases among school children, leading to the disclosure of 2,619 cases at homes. There were 231 school cases of scarlet fever and 745 home cases. Forty-six reported cases of measles led to the discovery of an epidemic prevalence of this disease in several sections of the city during November 1896 and again in May and June 1897. In October an epidemic of impetigo contagiosa spread through seven schools of the north division of the city, but was arrested in a few weeks, after excluding 107 cases from the schools and instituting proper preventive measures. Two schools were found afflicted with pediculosis to such an extent as to demand radical treatment. One case of tuberculosis was found at school in such an advanced stage as to justify exclusion from school attendance; this patient died before the close of the school year.

Stomatitis was found so prevalent in many schools that, upon the advice of the Medical Inspectors, the teachers instructed pupils to bring individual drinking cups from their homes and forbade the common practice of putting the lips directly to the water faucets for drinking.

The commonest sanitary defects of school building reported are uncleanliness; dirty floors, passages and stairways; damp and filthy basements; foul water-closets located near furnaces, so that poisoned air is driven through the building, in which cases teachers suffer from headache, "sore throat," etc. Among other insanitary conditions noted are defective plumbing, stagnant pools on adjoining lots, dirty alleys, overflowing garbage boxes and general lack of sanitary policing. In few of the older school buildings is there any provision for drying the feet and clothing in wet or stormy weather. So far as practicable the School Board caused many of these defects to be remedied.

The present Commissioner of Health, Dr. Arthur R. Reynolds is so thoroughly convinced of the value of this work that he purposes making another appeal to the council for an adequate force of inspectors. New York has recently appointed 150 physicians for this service while Boston, with a population of less than half a million, employs 50 with an average of four schools and 1,400 pupils to each.

Smallpox at New Orleans in 1896.—Dr. W. H. Woods, the chief sanitary inspector of that city, has made the following com-

ments on the progress and management of the recent epidemic of variola. It can hardly be a matter of surprise that the disease operated so unfavorably upon the general mortality rate of the city, if the laws of New Orleans will only admit of an easy going plan of prophylaxis as appears to have been at the command of Inspector Woods. His report says: "In February, 1895, a man came here from Arkansas and afterward developed a well-marked case of variola. At that time the disease existed all over the Eastern Arkansas and Western Tennessee counties. Otherwise than in a very general manner we could not further or more definitely trace the origin of the disease. From this case others in due season developed. In February, 1; in March, 4; in April, 3, and in May it reached the alarming proportion of 58 cases; in June there were 36 cases. After the first case in February the authorities vaccinated all parties living in the infected localities—that is, *all who would accept vaccination*. The clothing, bedding and wearing apparel, except those worn by the patients when sick, and the bed upon which he slept, were subjected to boiling water for thirty minutes and afterward left over night in a bichlorid solution of 1 in 1,000. Those articles and fabrics coming in direct contact with the patient were destroyed by fire. All carpets and matting in the patient's room were also destroyed by burning. The walls, floors, all furniture and fixtures, the galleries and even walks, yards and outhouses were sprayed or otherwise washed down with a bichlorid solution of 1 in 1,000. The interior of the house after thoroughly closing the openings and chinking all cracks, was subjected to sulphur fumes for nine hours, with from five to seven pounds of sulphur candles to 1,000 cubic feet of air space. With these rigid measures observed in every instance of the disease the outbreak was in a manner controlled during the summer months of 1895, but with the advent of winter the disease seemed to take a fresh start, having been reintroduced from time to time from the country parishes where it existed to quite an extent. In the fall of 1895 a very rigid vaccination campaign was inaugurated by the board of health, and the work was not stopped until the entire city had been canvassed by a large and efficient corps of physicians, who systematically, by districts, went from house to house urging free vaccination. During this campaign 53,437 people were vaccinated and revaccinated. After this systematic vaccination campaign was over and the influx of darkies from the country parishes had ceased the disease steadily decreased. In March, 1896, or about twelve months after the inception of the epidemic, we had the greatest number of cases of any month during its prevalence, reaching a total of 334 cases. Since the introduction of the disease in February, 1895, we have had 1,126 cases with 291 deaths, making a mortality rate of 25.84 per cent. among those attacked."

Tuberculosis in Dairy Cattle in Ireland.—Dr. Kirkpatrick, an inspector of the Privy Council of Ireland, has investigated the condition of dairy cattle that are kept at Dublin and vicinity, and reports as follows: "It appears from the departmental records that the postmortem examination of the lungs of cattle slaughtered by direction of the Veterinary Department between the years 1888-1893 in the North and South Dublin Unions as having been in contact with cattle affected with pleuro-pneumonia, or otherwise exposed to the infection of that disease, showed that the proportion of cases in which the lungs were affected with tuberculosis was almost 5 per cent. The majority of cattle slaughtered were dairy cows." It is evident from this statement that if only 4 out of 1,500 cows are now affected with tuberculosis there must be a most marked improvement in the health of cattle in this district. Indeed, such a marked change in so short a time is sufficiently remarkable to call for some explanation. So far from an explanation of this improvement being forthcoming it is a matter of common knowledge that little or nothing is being or has been done to improve the state of the dairy yards, the insanitary condition of which has been so often pointed out. Taking these facts into consideration and remembering that the extraordinary prevalence of tuberculosis among dairy cattle in general has been amply proved by numerous statistics, we shall, I think, be justified in doubting these results so long as the methods by which they were obtained are open to suspicion. Professor McFadyean, when summing up the results of his experiments for the recent Royal Commission, states: "The conclusion that appears warranted is that ordinary clinical examination is almost valueless for the detection of tuberculosis in its early stages." Over and over again in his published works this great authority on veterinary pathology has stated that ordinary clinical examination even in the hands of the most skilled and experienced veterinary surgeons is incapable of pointing out all the animals affected with tuberculosis. Unless some more accurate means of diagnosis is used than ordinary clinical examination affords, veterinary surgeons merely leave themselves open to the charge of incompetence by certifying animals to be free from tuberculosis. It would appear that Koch's tuberculin, in the hands of skilled surgeons, is the most accurate method of diagnosing tuberculosis of cattle, and where it can not be used most veterinary surgeons decline to express a decided opinion. We can not, then, accept any statement as to the number of tuberculous cattle in our dairy yards which is not based on examination with tuberculin or the result of postmortem examination.—London *Lancet*, May 8.

Health in Michigan.—Consumption was reported present in the month of June, 1897, at 189 places; measles at 160; diphtheria at 73; scarlet fever at 51; typhoid fever at 28, and whooping cough at 21 places. In May consumption was reported at 180 places; diphtheria at 50; scarlet fever at 36; typhoid fever at 32; whooping cough at 17, and measles at the same number of places.

MISCELLANY.

Hardly Credible.—A bedside dispute over a patient has led to a duel in Germany. The conflict took place on the outskirts of Bonn, one of the combatants receiving a mortal wound in the chest. Hogarth has immortalized a somewhat similar quarrel between Dr. Pill and Dr. Potion, but the nurse improved the situation by rifling the moribund's trunk.

A New Medical Journal.—*The Medical Register*, Richmond, Va., Vol. 1, No. 2, is noted among our exchanges. This publication will appear monthly under the auspices of the Faculty and Alumni of the Medical College of Virginia. Subscription price $1.00.

Not a Privileged Communication.—Information communicated to an attending physician by the mother of a bastard child as to who was the father thereof, the supreme court of Michigan holds, in the case of People v. Cole, May 25, 1897, is not a confidential communication within the purview of the statute of that State which prohibits a disclosure of any information by any attending physician, "which information was necessary to enable him to prescribe for such patient as a physician, or to do any act for him as a surgeon," the information in question not being necessary to enable the physician to prescribe for the mother.

The Patriarchal Medical Student.—Probably the oldest medical student in the country is James Scott, who is taking an undergraduate course at the Maine Medical School, Brunswick. Mr. Scott of Crow Harbor, Guysboro, N. S., has entered upon a three-years course at the school, and when he receives his degree of M.D., will have passed his sixtieth mile stone. He is a native of Dumfriesshire, Scotland, and went to Nova

Scotia at the age of 18 years. He has been a Baptist minister at Crow Harbor and other places in Nova Scotia for many years. Within the last four or five years he had been studying and practicing medicine in a desultory way, especially in cases of accidents, and he finally made up his mind to acquire a thorough medical education. He has a wife, three daughters and a son at Crow Harbor.—*Journal of Medicine and Science*, April.

An Undignified Circular.—We have received the following from the Birmingham Medical College, Alabama. Dr. Geo. A. Hogan is the Professor of Chemistry and Toxicology. It bears its own comment:

Dear Sir:—Please send me on the enclosed postal card the names and addresses of any medical student or students you may know, or young men who expect to study medicine.

Our announcement is herewith enclosed and gives information about the College and Faculty.

For every student you may influence to attend our school the Faculty will give you $10. The said student or students to pay full tuition fees.

Hoping to hear from you soon, I am

Very sincerely, GEO. A. HOGAN, Sec'y.

The New "Revue Philanthropique," Paris, has been founded to describe and report the results of benevolent organizations, etc., and can not fail to stimulate many new efforts. We note in it that the Countess de Castellane has given a million francs to erect a permanent building in Paris for charity bazars; that the subscriptions received by the Layette Society are devoted to paying working women out of employment, who sew for the Society, which distributed last year 400 complete outfits for infants; the Maison Maternelle receives children whose parents are temporarily in distress, and has thus taken charge of 1,698 children in the six years since its foundation, with an average stay of 67 days. But the most important among the numerous charities in Paris it describes is a new semi official organization, known as the "patronage" of the hospitals, which is to assure the bread-winner taken to the hospital that his family will be taken care of during his absence and that he will be assisted during his convalescence. The effect of this announcement is said to have a wonderfully beneficial influence upon the recovery of the patient. Paul Strauss, editor of the *Revue* and member of the City Council, is the originator of the scheme.

Diluted Fluid Extracts are not Tinctures.—Tinctures are very frequently made from the fluid extracts, and some manufacturers issue formulæ for making them in this way. There is no proper nor admissible way of making official tinctures other than by the pharmacopeal processes, and diluted fluid extracts are not tinctures and can not properly nor safely be labeled nor dispensed as such, however common the objectionable practice may become. A number of the more important tinctures of the pharmacopeia, properly made from good materials is made up and listed by one or more manufacturing pharmacists. The list of one of them has a column showing the strength of each tincture given. This column can hardly fail to be a cogent argument against this class and in favor of the more uniform fluid extracts. In this column the strengths vary all the way from two-thirds of a gram to one two-hundred and seventy-fourth of a gram to the cubic centimeter. Several, however, are from one-sixth to one-twelfth of a gram to the cubic centimeter, and therefore the fluid extracts of the same drugs, which are uniform in strength, are from six to twelve times stronger than the tinctures; while although the latter cost from one-third to one-half of what the fluid extracts do, they occupy six to twelve times the space, and weigh six to twelve times as much. And the dose, usually a disagreeable one, is six to twelve times as large, and this latter at a time when it is claimed that homeopathy gains so much in popularity as to displace the regular physician by the smallness of doses.—*Annual List of Dr. E. R. Squibb.*

Dr. Laveran Resigns from the French Army.—The surgical staff of the French Army has been greatly weakened by the more and more frequent resignations, owing to the dissatisfaction of the surgeons. Dr. Laveran, formerly a professor at the School of Military Hygiene and the discoverer of the hæmatozoön of malaria, is among those who have found it difficult to remain in the corps by reason of the uncavalier treatment accorded to him by the War Ministry. The professors are nominated for ten years only, and at the expiration of M. Laveran's term his post was changed and he was sent by the War Minister to a provincial garrison town as a simple army surgeon, no regard being paid to his position as a member of the Academy or to his great scientific reputation. He remained for some time at this station with a rank far below that to which his length of service entitled him, coming to Paris and continuing his researches at the Academy. In consequence of the delays and worries which the war department made him undergo, putting actual obstacles in the way of his scientific work, he preferred to send in his resignation and to quit the army medical department, of which he had been a prominent figure, at the age of 56 years. In a similar case in this country, an assistant secretary, greatly puffed up during his brief term of office, when appealed to for protection from the spite of the malicious and mendacious beaureacrat who issued the order, and asked to consider the long and exceptional public service of the transferred officer, with an attempt at humor that made him so full of it that it exuded from every pore, replied, "He is a good man, but there are others;" at which the able correspondent joined in the hilarity, and the incident was telegraphed to the home paper, as one of the greatest of the evidences of statesmanship which the temporary great man produced. It is pleasant to add that when Mr. Gage took hold of the Department the temporary great man lost his office and his greatness together. We have forgotten his name!

Promises to Cure by Supernatural Power.—The conviction of a "Professor" of obtaining money under false pretenses was affirmed by the court of appeals of Maryland, March 31, 1897, in the case of Jules v. State. The charge against him was summed up as equivalent to the declaration: "I now have or am possessed of extraordinary and supernatural powers to cure you. I can and I will cure you." Paraphrased, it was, that he said: "I have the power. I have it now. I will exert that power in the future to cure you." This, it was contended, amounted only to a future promise, or a promise to cure in the future, which lacked, for the purpose of the prosecution, the essential element of a false representation of an existing fact. But the court holds that there was here a false representation as well as a promise—a false representation of an existing fact, and a promise to cure in the future. The alleged existing fact was that he then and there had the supernatural and extraordinary power to cure in the manner he claimed. The testimony of the prosecuting witness in this case was, in part, as follows: "The professor offered me paper, and told me to write my name and age upon it, and not to let him see what I wrote. I wrote my name and age, and he walked up and down the room, and looked out of the window, and took the paper, and folded it up, and placed it against his forehead, and then told me what I had written on the paper. He said: 'You suffer from stomach trouble, and I can and will cure you within six weeks, or return your money.'" There was also a charm to be worn, which "was essential to the treatment." This evidence, the court holds was admissible to support the charge that the defendant pretended to have extraordinary and supernatural powers to cure, and as tending to prove that the assurance by the defendant of his power to cure was a false representation. It could hardly be contended, suggested the court, that a physician with ordinary powers, and using ordinary means to cure, would adopt the mode of treatment here testified to. And, it may be added, as might have been expected, the patient was not benefited, and, after securing the prosecutor's money, the defendant left the city.

Russian Medical Institutions.—Dr. S. M. Malischew of Rostaw, writes to the *Deutsche Med. Woch.*, No. 14, to correct several inaccurate statements in various articles that have appeared recently on this subject. He explains the official medical service as follows: Russia is divided into 97 governments. Two-thirds of these are governed each by an official appointed by the State, and the other third by a local institution known as the Semstwo, which has charge of the affairs of the government, including the medical and sanitary. The Semstwo of the Moscow government was the first established (1864), and possesses an ideal medico-sanitary organization, from which the rest were modeled. It has a population of a million and a half, and yet the medical service is so arranged that it is within the reach of all, effective and fruitful of results. This is accomplished by dividing the government into 118 medical districts. The physician in chief of each district resides in the hospital erected in the center of the district, and takes charge of the sick in the country around for a distance of twelve wersts. (One werst = 1,066,781 meters.) The hospital has usually a capacity of twelve to fifteen beds, dispensary, etc., with a pavilion apart for maternity cases and another on the other side for contagious diseases. In ten of the districts there is also a building for chronic patients. All these hospitals and the medical assistance, dressings, etc., are free. Vaccination and sanitary oversight of the schools are also in the hands of the head physician, who has an assistant where needed. The sanitary conditions of the government are in charge of a corps of eight or nine special physicians, some of whom cooperate in recording the medical statistics of the government. The physician receives his residence free, heated and lighted, and also free transportation and 100 to 150 roubles a month. (The rouble = about 55 cents.) The administration of the affairs of the medical department is in the hands of what is called the Health Council, composed of all the district physicians, and five or six members of the Semstwo. This cooperation of medical men and the officials best acquainted with the economic and financial conditions, etc., of the government, results in fruitful action. There is besides all this a vaccine institute, a colony for the insane near Moscow with 1700 acres of land, and a medico-statistic bureau in Moscow. Every two or three years all the physicians in the government meet in a general congress, the transactions of which are published. The expense of all these institutions amounts to almost a million roubles, part of which is contributed by manufacturing firms and landed proprietors. The state is planning to introduce the Semstwo into other governments as soon as possible, but has slightly restricted its independence of action since 1890.

Washington.

HEALTH OF THE DISTRICT.—The mortality for the past week was 128, of which 60 were white and 68 colored. The prominent causes of death were, diarrheal diseases 29; brain disorders, 17; lung diseases 19, of which 15 were from consumption. There were 3 fatal cases of diphtheria and 3 from whooping-cough, and 2 from typhoid fever. No new cases of scarlet fever were reported.

THE NEW SUPERINTENDENT OF CHARITIES.—Mr. Herbert W. Lewis has been appointed Superintendent of Charities to succeed Colonel Tracey, deceased.

MEDICAL SOCIETY.—At the stated meeting of the Medical Society held on the 5th inst., the semi-annual business of the Society was transacted. The treasurer, Dr. Franzoni, made his report. A number of applications for membership were received. The hot weather had a reducing effect upon the attendance of the Society, only seven out of three hundred and seventy-seven members being present.

TO LOCATE THE ISOLATING HOSPITALS.—The Commissioners have addressed circular letters to the different hospitals, setting forth the terms upon which they will agree to the location of the isolating wards. Thirty thousand dollars has been appropriated and is now available for that purpose. The diseases which will be treated in these wards are scarlet fever, measles, erysipelas and other contagious diseases of less gravity.

CENTRAL DISPENSARY AND EMERGENCY HOSPITAL.—At the the July meeting of the Board of Directors of the Hospital, the attending staff made the following report: Number of new cases treated, 1,329; number old cases, 2,540; total number of cases treated, 3,869; number of deaths, 7; number of post-mortems, 4; number of operations, 226; number of ambulance calls, 39.

THE PUBLIC SERVICE.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from July 3 to 9, 1897.

Capt. William F. Lippitt, Jr., Asst. Surgeon (Ft. Leavenworth, Kan.), leave of absence granted to take effect about July 24, 1897, is changed to take effect when his services can be spared by his post commander, and is extended one month.

Capt. Henry P. Birmingham, Asst. Surgeon, on being relieved from duty at Ft. Trumbull, Conn., by Major Woodruff, will proceed to Chicago, Ill., and report for duty as attending surgeon and examiner of recruits, relieving Capt. Norton Strong, Asst. Surgeon. Capt Strong, on being thus relieved, is ordered to Ft. Myer, Va., for duty, relieving Capt. William H. Arthur, Asst. Surgeon.

Major Louis M. Maus, Surgeon, is relieved from temporary duty in the office of the Surgeon-General of the Army, and will on Aug. 2, 1897, report for duty at Ft. Hamilton, N. Y., relieving Major Paul R. Brown, Surgeon. Major Brown, on being thus relieved, is ordered to Ft. Keogh, Mont., for duty, relieving Major Ezra Woodruff, Surgeon. Major Woodruff, on being thus relieved, is ordered to Ft. Trumbull, Conn., for duty, relieving Capt. Henry P. Birmingham, Asst. Surgeon.

A board of officers to consist of: Col. William H. Forwood, Asst. Surgeon-General; Major George W. Adair, Surgeon; Major Walter Reed, Surgeon; Major James C. Merrill, Surgeon; Capt. Leonard Wood, Asst. Surgeon, is constituted to meet at the Army Medical Museum Building, Washington, D. C., on Monday, Sept. 27, 1897, at 10 o'clock A. M., for the examination of candidates for admission to the Medical Corps of the Army.

CHANGE OF ADDRESS.

Anderton, W. B., from New York to East Quogue, L. I., N. Y.
Bonner, M. H., from Nashville to Murphreesboro, Tenn.
Battell, J. Geo., from Grand and Western Avs. to 799 N. Leavitt St., Chicago.
Clark, J. F., from Angola to 120 W. Lincoln Av., Goshen, Ind.
Cresswell, Willis W., from Minneapolis to Dundas, Minn.
Caldwell, W. S., from Edinburgh, Scotland, to care of Union Bank of London, London, England.
Ebert, R. G., from Philadelphia, Pa., to care of Dr. W. H. Saylor, Hamilton Bldg., Portland, Ore.
Eads, S. O., from Somerset, Ky., to Arthur, Ill.
Fellman, G. H., from Oak Park, Ill., to 289 Pavonia Av., Jersey City, N. J.
Houston, Jas., from New York, N. Y., to Swartz Creek, Mich.
Kolmer, J., from 203 N. Illinois to 19 W. Ohio St., Indianapolis, Ind.
Johnson, L. D., from 819 W. Harrison St. to cor. Lake St. and California Av., Chicago.
Linjer, O. E., from Starbuck to St. James, Minn.
Makuen, G. H., from Philadelphia to Cresson Springs, Pa.
Rathbone, F. W., from Albuquerque, N. M., to Tonganoxie, Kan.
Sleicher, J. M., from Chicago, Ill., to 102 Main St., Watertown, N. Y.
Seofield, W. K., from Philadelphia, Pa., to 62 South View Av., Stamford, Conn.
Stone, R. F., from 250 N. Illinois to 14 W. Ohio St., Indianapolis, Ind.
Stewart, D. D., from 2602 N. 5th to 108 S. 17th St., Philadelphia, Pa.
Ward, Milo B., from Topeka, Kan., to Rialto Bldg., Kansas City, Mo.
Wolff, A. S., from Brownsville to Isabel, Texas.

LETTERS RECEIVED.

Arnold, Edmund S. F., Newport, R. I.; Atkinson, W. B., Philadelphia Pa.; Arlington Chemical Co., The, Yonkers, N. Y.
Baldwin, Helen, New York, N. Y.; Burgoyne, J. A., Columbus, Ohio; Barker, Lewellys F., Baltimore, Md.; Beadles, C. H., Sadlersville, Tenn.; Burwell, W. M., Chincoteague Island, Va.
Columbus Phaeton Co., Columbus, Ohio; Clark, E. E., Danville, Ill.
Douglas, Morton G., Warrenton, Va.; Dubs, R. S., Chicago; Daniel, J. B., Atlanta, Ga.
Edson, Carroll E., Denver, Colo.; Elliott, A. R., New York, N. Y.; Eastman, Joseph, Indianapolis, Ind.; Enno Sander Mineral Water Co., St. Louis, Mo.
Forester, Joseph, Erie, Pa.
Gleitsmann, J. W., New York, N. Y.
Herrick, H. B., Cleveland, Ohio; Hayden, A. M., Evansville, Ind.; Hunt, C. C., Dixon, Ill.; Hummel, A. L. Adv. Agency, New York, N. Y.; Hobby, C. N., Iowa City, Iowa; Hare, H. A., Philadelphia, Pa.; Holmes, Bayard, Chicago; Home for Inebriates, Stamford, Conn.
Jones, Mary, A. D., New York, N. Y.
Knopf, S. A., New York, N. Y.; Kentucky School of Medicine, Louisville, Ky.; King, Thomas, Cincinnati, Ohio. Kenyon, E. L., Chicago.; Koechl, Victor, & Co., New York, N. Y.
Love-Hadley Publishing Co., St. Louis, Mo.
Marvin, J. B., Louisville, Ky.; Manley, Thomas H., New York, N. Y.; Mills, James, Janesville, Wis.; McClellan, E. S., Saranac Lake, N. Y.; Mulford, H. K., Co., Philadelphia, Pa.; Minor, J. C., Hot Springs, Ark.; Morse, Lyman D., Advertising Agency, New York, N. Y.
Nuckols, M. E., Richmond, Va.
Oaks, John F. (2., Chicago; Otis, N. M., Fairbury, Ill.
Prewitt, T. F., St. Louis, Mo.; Potomac Advertising Agency, Washington, D. C.; Preston, George M., Lynchburg, Va.
Roop, J. W., Daly's, Texas; Reynolds, Arthur R., Chicago; Robertson, John, Cincinnati, Ohio; Reynolds, Dudley S., Louisville, Ky.
Stewart, D. D., Philadelphia, Pa.; Sander, Enno, Paris, France; Solis-Cohen, S., Philadelphia, Pa.; Schering & Glatz (2), New York, N. Y.
University of Virginia, Charlottesville, Va.; University College of Medicine, Richmond, Va.
White, S. S., The, Dental Mfg. Co., Philadelphia, Pa.; Wing, E. D. (2), New York, N. Y.; Wright, John W., Columbus, Ohio; Wareham, J. W., Gilead, Ind.; Way, J. H., Waynesville, N. C.; Ward, Montgomery, & Co., Chicago.